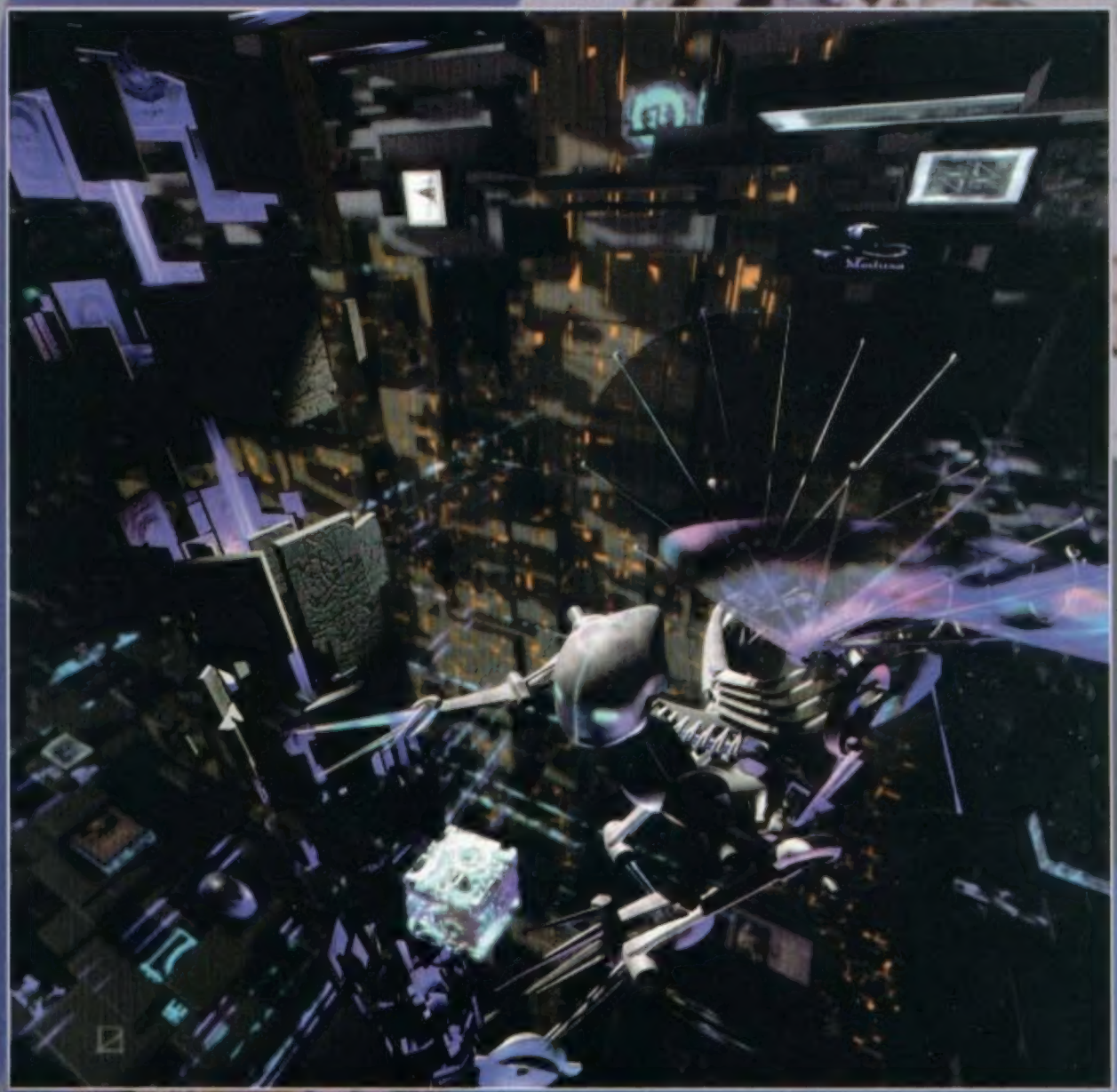
PAYDATA



Ornisapien sleazed his way into the Renraku military research host without much trouble. Now he just needs to grab the test results for the corp's prototype smart drones and get out in one piece.

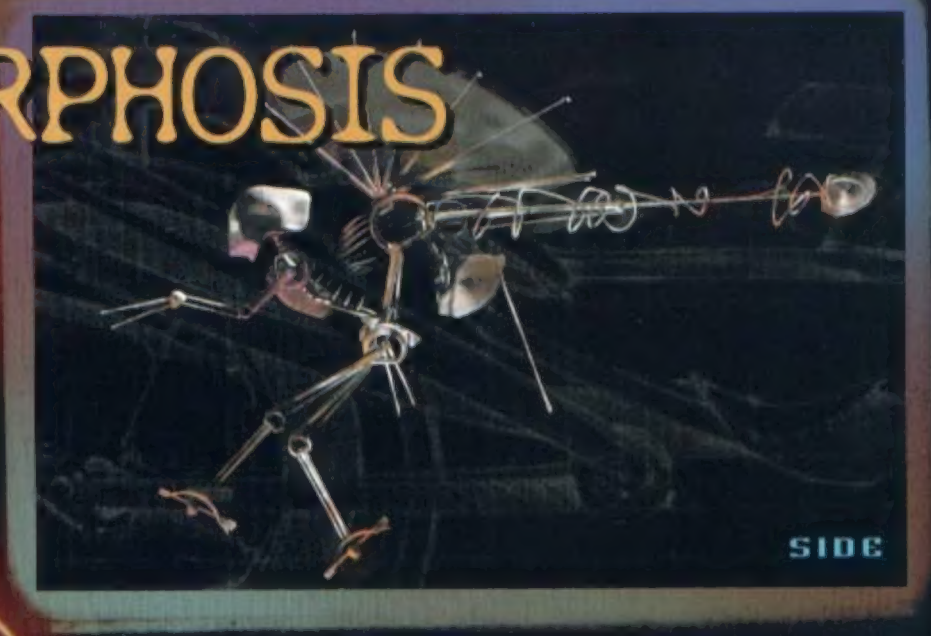
CENTRAL METAPHOR

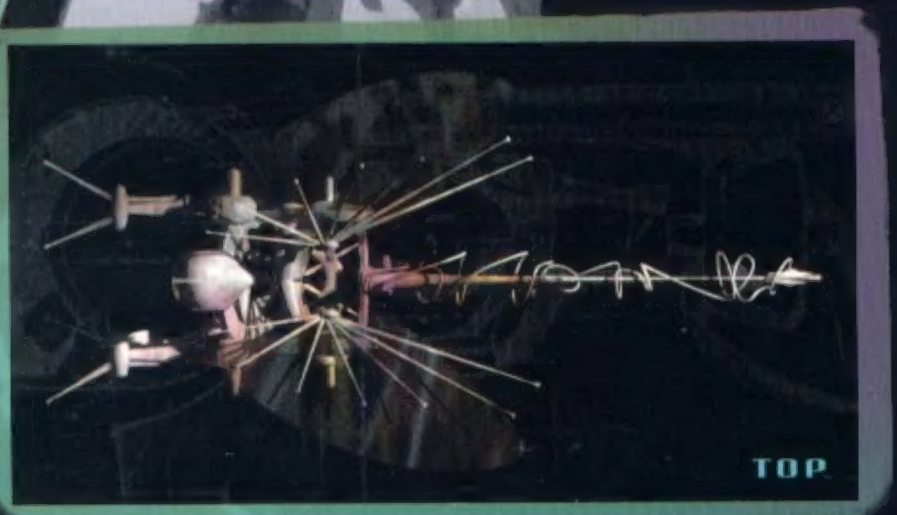
A datastream passes the ominous sculpted construct of the Atlantean Foundation looming in the Seattle Matrix.

DECKING THE SATELLITE

Using stolen algorithms, Ornisapien triggers a vanishing SAN that gives him a satlink to the Renraku Military host. The real trick is jamming it open long enough to get out the same way.

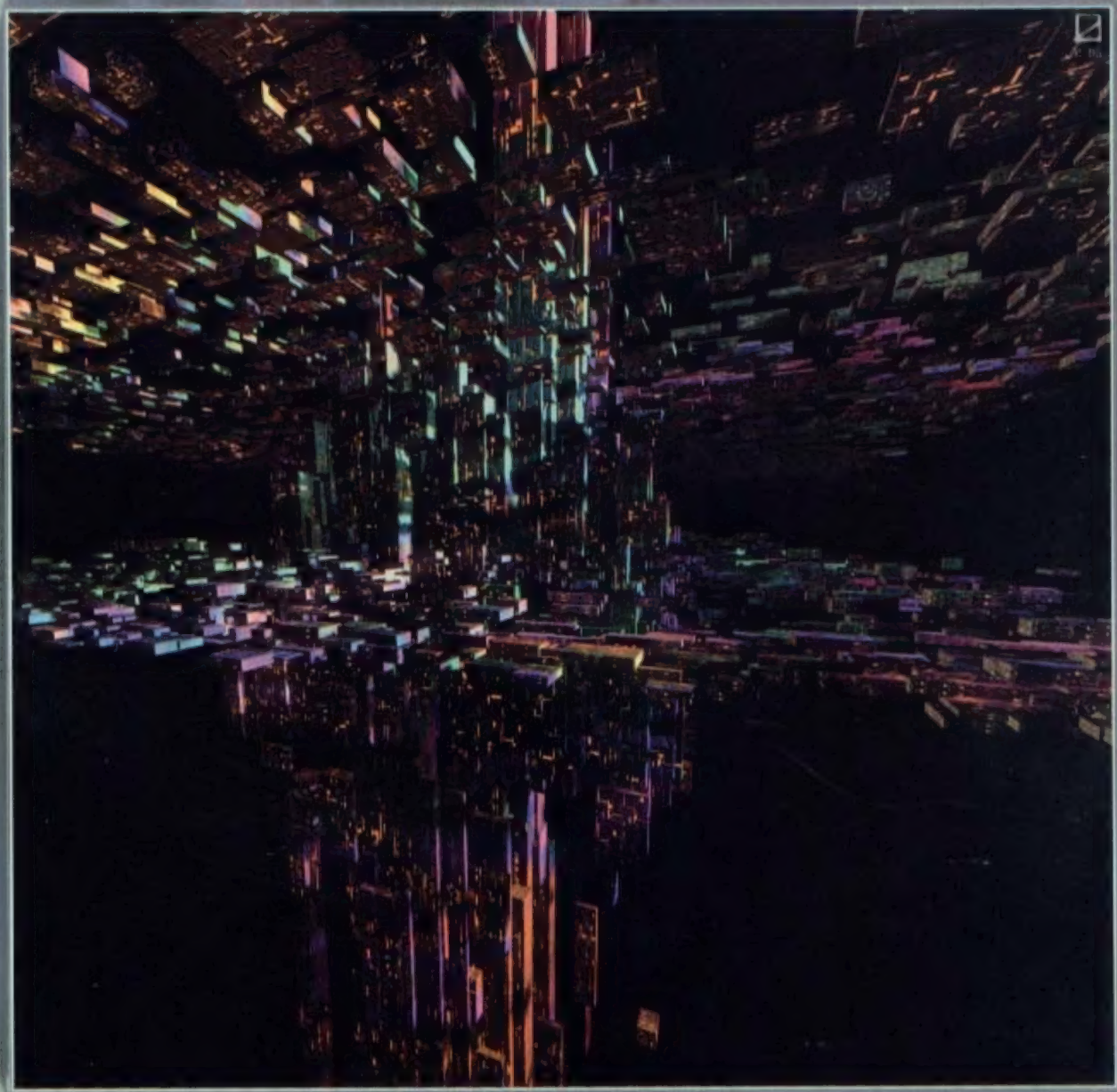
METAMORPHOSIS





Remember when Ornisapien looked like a dragonfly? He believes in maintaining the SOTA—with a vengeance.

DATASTORE

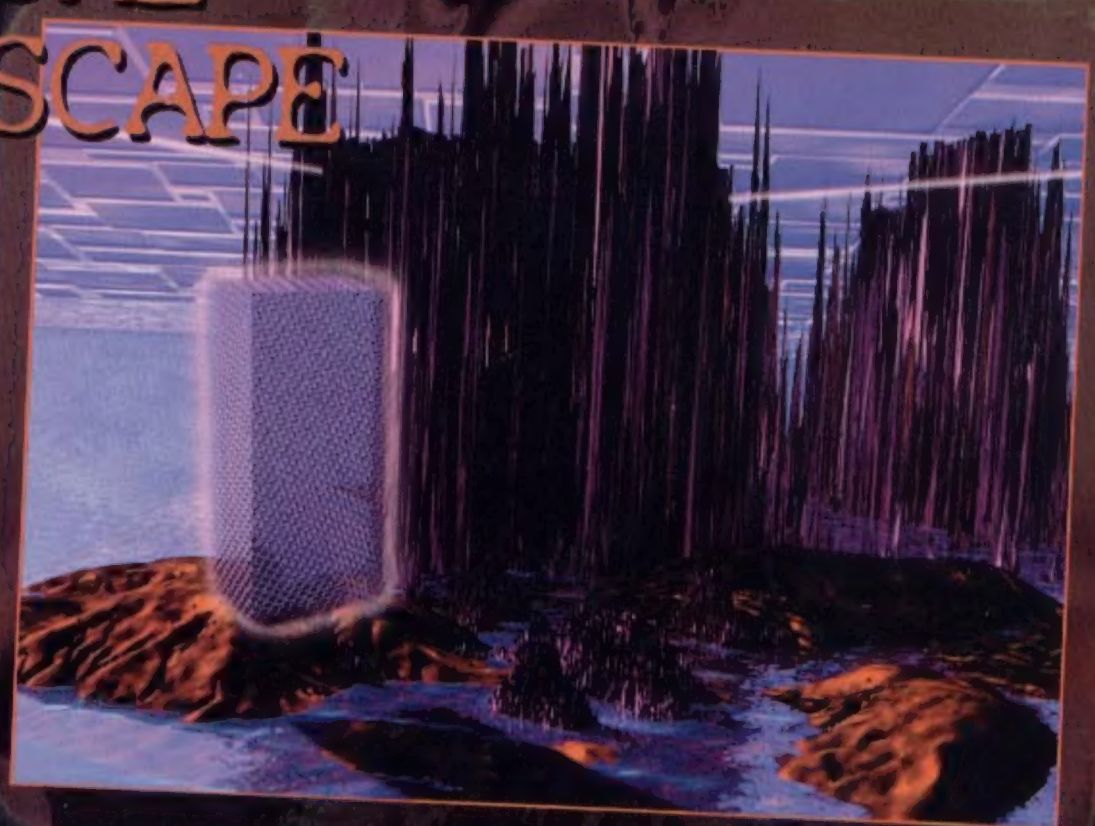


When dealing with a datastore this big, even the best browse utility wielded by the hottest decker is no match for a well-designed smart frame.

PYRO

Pyro, Ares Macrotechnology's hottest decker, patrols the corp's sculpted system using a custom-built "napalm blast" attack program.

VIRTUAL LANDSCAPE



In the strange reality of the Matrix, an innocuous purple rectangle may be the most dangerous object in a decker's path.

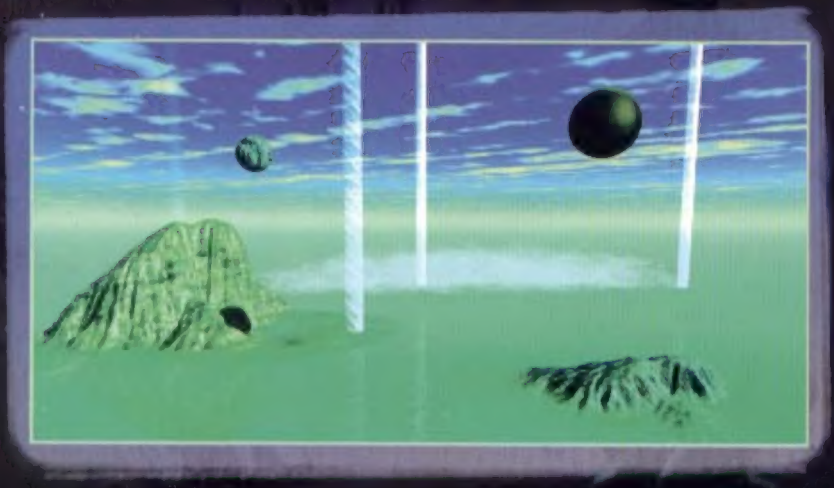
SYSTEM ALERT

Green lightning! A trace-trap-killer IC construct scans the system for intruders.

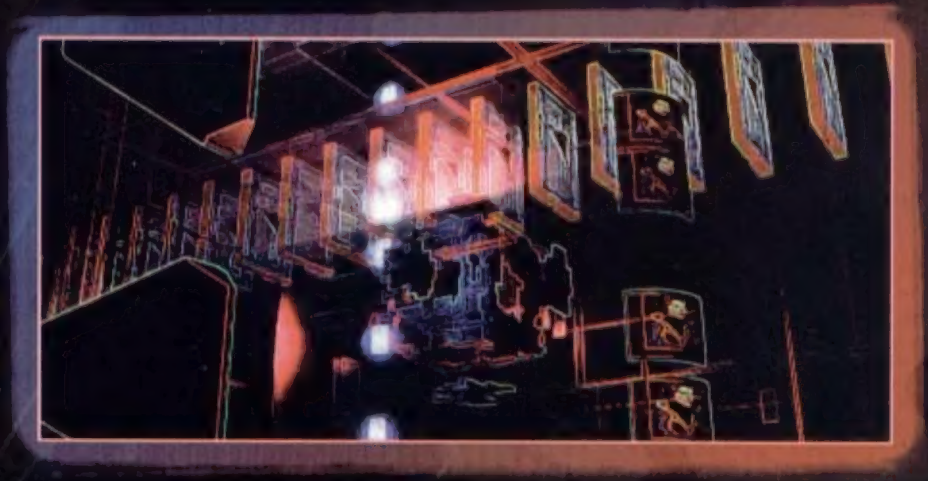
JACKPOINT

A serene desert landscape greets deckers jacking into the Ute Nation RTG. Like its real-world counterpart, this location is beautiful but deadly.

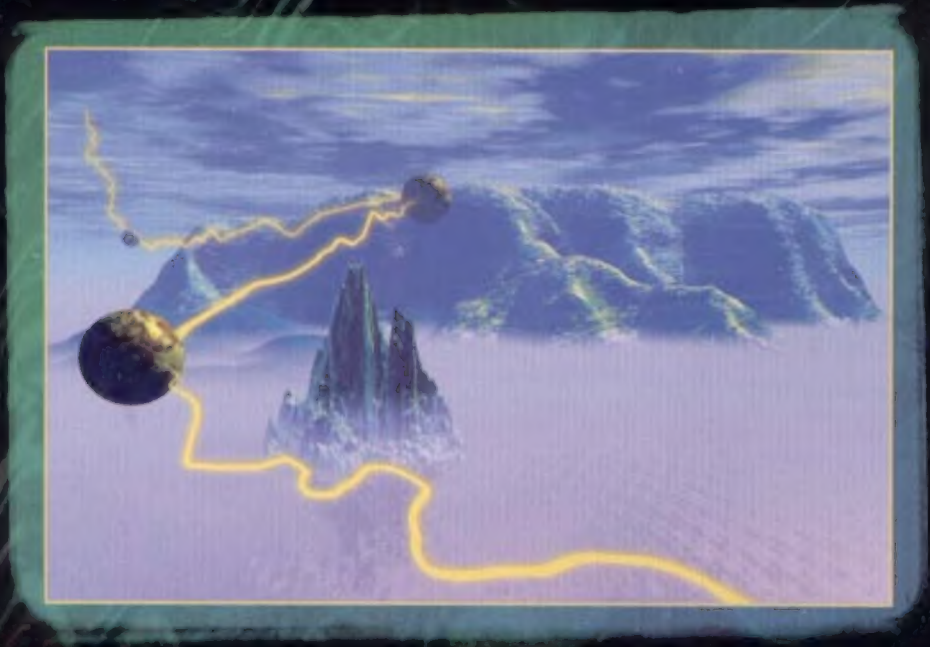
THE WORLDS WITHIN



Data flows in and out of a virtual ocean of information.



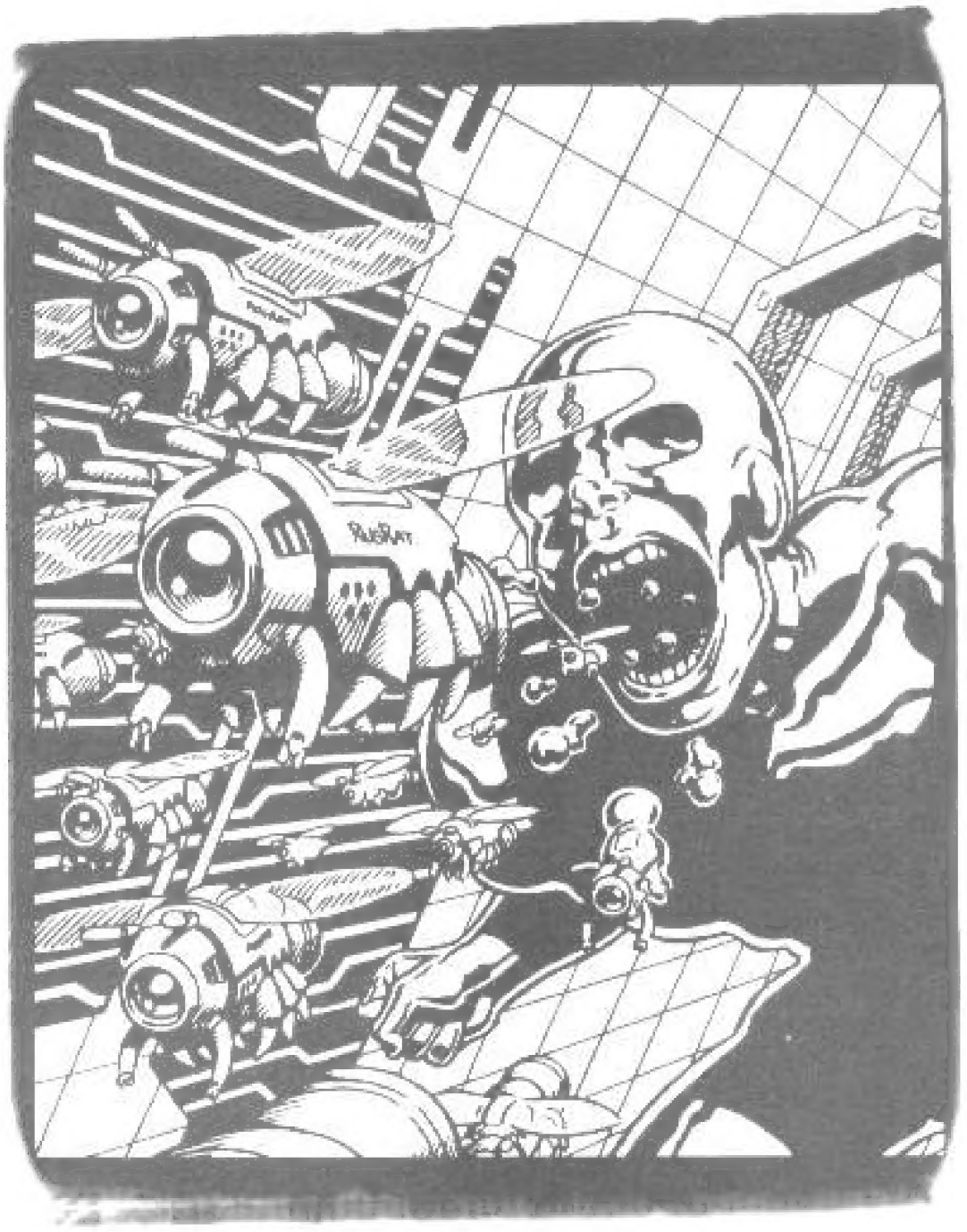
The Neon Corridor—gateway to the Yamatetsu public archives.



Fuchi Inc. programs expert-system knowbots to defend the Nakatomi family's personal records.

VIRTUAL REALITIES 2.0

A SHADOWRUN SOURCEBOOK



FASA CORPORATION

TABLE OF CONTENTS

INTRODUCTION 5
INTERLUDE 1: WELCOME TO THE MATRIX 7
MATRIX 2.0 12
Icons 14
Grids and Hosts 14
Matrix Topology 14
System Ratings 16
Security Rating 16
Subsystem Ratings 16
Rating Format 16
Deck Ratings 17
Detection Factor 17
The Hacking Pool 18
System Tests 19
Security Tally 19
INTERLUDE 2: THINGS TO COME 20
GRIDS AND HOSTS 24
Grids 26
RTG 26
LTG 28
Private LTGs 28
Jackpoints 28
Grid Security Tallies 29
System Operations on Grids 29
Satellite Links 30
Hosts 30
Security Codes 30
Intrusion Difficulty 31
System Ratings 31
System Tricks 32
Passcodes 35
Host Networks 36
UV Hosts 36
INTRUSION COUNTERMEASURES 38
Proactive vs. Reactive 40
Locating IC 40
Crashing IC 40
Suppressing IC 40
IC Ratings 40
White IC 40
Cripplers 41
Killer 41
Data Bomb 41
Probe 42
Scramble 42
Tar Baby 42
Gray IC 43
Blaster 43
Rippers 43
Sparky 43
Tar Pit 43
Worms 43
Trace IC 45
Trace Factor 45
Hunt Cycle 45
Location Cycle 45
Defeating Trace IC 45
Trace Effects 45
Trap Trace 47
Trace on a Grid 47
Black IC 47
Black IC in Combat 47
Lethal Black IC 48
Non-lethal Black IC 49
Psychotropic Black IC 49
Recovering from Psychotropic Effects 50
IC Defensive Options 50
Armor Defense 50
Shield Defense 50
Shift Defense 50
Trap IC 50
Optional Rules 51
Cascading IC 51
Expert IC 52
Constructs 52
Party IC 52
Host Shutdown 53
INTERLUDE 3: SOTA IN FEAR 54
MAPPING MATRICES 60
System Access Nodes 62
Security Sheaves 62
Trigger Steps 62
Alerts 62
Random IC Allocation 63
Caveats 65
Host Reset 65
What Hosts Do 65
Paydata 65
Slave Systems 68
Applications 68
UMS and Sculpted Systems 68
Choosing a Metaphor 68
Effects of Sculpted Systems and Reality Filters 69
Mapping Sculpted Systems 69
INTERLUDE 4: WORLDS OF THE MATRIX 70
DECKERS 74
Attributes 76
Skills 76
The Persona 76
The MPCP 76
Persona Programs 76
Optional Rule: Deck Modes 77
Default Mode 77
Bod Mode 77
Evasion Mode 77
Masking Mode 77
Sensor Mode 77
Deckers and Tasks 77
Task Bonuses 77
Finishing Tasks 77

TABLE OF CONTENTS

Health and Tasks 77
Optional Rule: SOTA 78
SOTA Factor 78
Lifestyle and SOTA 78
Maintenance Costs 78
ARCHETYPES 79
Decker 79
Elven Decker 80
CYBERDECKS 81
Constructing Decks 82
Task Descriptions 82
Cranial Cyberdecks 82
Tools and Parts 82
Tools 82
Parts 83
Upgrades 83
Optional Rule: Salvage 84
MPCP 84
MPCP Upgrades 84
Reality Filters 84
MPCP Iconography 84
MCCP Construction 84
PERSONA PROGRAMS 84
PERSONA CONSTRUCTION 84
Active Memory 84
ASIST Interface 84
Control Interfaces 84
RAS Override 85
Tortoises 85
Hardening 86
ICCM Biofeedback Filter 86
I/O Speed 86
Response Increase 87
Satlink Interface 88
Storage Memory 88
Miscellaneous Components 88
Decks à la Carte 89
Package Discounts 89
Optional Rule: Breadboarding 90
Optional Rule: Commercial Conversions 90
Optional Rule: Bandwidth 90
Icon Bandwidth 91
I/O Bandwidth 91
CONTACT 92
The Deckmeister 92
LOCATION ARCHETYPE 93
The Deck Shop 93
PROGRAMS 94
Source and Object Code 96
Utilities 96
Operational Utilities 96
Special Utilities 97
Offensive Utilities 98
Defensive Utilities 99
Programming 100
Program Ratings 101
Program Size 101
Programming Tools 101
Optional Rule: Utility Options 102
Options and Size 103
Options and Ratings 103
Options and Cost 103
Area 103
Chaser 103
DINAB 103
Limit 104
One-Shot 104
Optimization 104
Penetration 104
Sensitive 104
Skulk 104
Squeeze 104
Targeting 104
Command Sets 104
Frames 104
Frame Core 105
Frame Loading 106
Running a Frame 106
Dumb Frames 106
Smart Frames 107
Upgrading 107
Buying Programs 107
SYSTEM OPERATIONS 108
Interrogations 110
Ongoing Operations 110
Monitored Operations 110
Operations Descriptions 110
CYBERCOMBAT 119
Cybercombat Sequence 120
Subjective Time 120
Initiative 120
Decker Initiative 120
IC Initiative 120
Other Programs 120
Actions 120
Free Actions 120
Simple Actions 121
Complex Actions 121
Non-Combat Actions 121
Initiating Combat 121
Combat Maneuvers 121
Evade Detection 122
Parry Attack 122
Position Attack 122
Resolving Attacks 123
Improvised Attacks 123
Icon Damage 123
Condition Monitors 123
Simsense Overload 124
Dump Shock 124

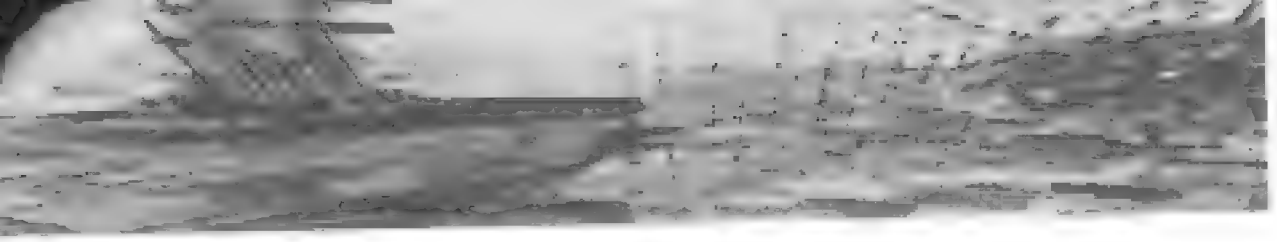


TABLE OF CONTENTS

HACKER HOUSE 125
Persona Software and Firmware 126
MPCPs 126
Personaware Programs 126
Full Persona Suites 127
Utilities 127
Operational Utilities 127
Special Utilities 129
Offensive Utilities 130
MATRIX LAW 132
Dataspace Jurisdictions 135
Public Dataspace 135
Government Dataspace 136
Corporate Dataspace 136
ARTIFICIAL INTELLIGENCE 138
Semi-Autonomous Knowbots 140
SKs and Native Hosts 140
SK Ratings 141
Utility Pool 141
SK Response 141
Running an SK 141
True AI 141
THE OTAKU 142
Becoming Otaku 144
The Deep Resonance 144
Building an Otaku 144
Allocating Attributes 144
Allocating Skills 145
Allocating Resources 145
Programming Days 145
Living Persona 145
Enhanced Attributes 145
Response 145
Armor/Hardening 145
Complex Forms 145
Sprites 146
Otaku and the SOTA 146
Otaku and Damage 146
Playing an Otaku 146
Cyberadept or Technoshaman? 147
Mystery of the Otaku 147
What's Really Going On? 148
MATRIX HOT SPOTS 149
Ares Macrotechnology 150
Shiseki-Gumo 151
Federal Records 153
APPENDIX 156
Goods and Services 157
Reference Tables 158
Cyberdeck Record Sheet 165
Cyberdeck Construction Worksheet 166
Programming Worksheet 168
INDEX 169

Writing
Paul R. Hume

Development
Carl Sargent with Michael Mulvihill

Editorial Staff
Editorial Director
Donna Ippolito
Managing Editor
Sharon Turner Mulvihill
Associate Editors
Diane Piron-Gelman
Robert "Brainiac" Cruz

Production Staff
Art Director
Jim Nelson
Project Directors
Joel Biske, Mark Ernst
Cover Art
Darrel Anderson
Cover Design
Jim Nelson
Color Section Illustration
Darrel Anderson, Joel Biske, Jim Nelson
Color Section Design
Mark Ernst, Jim Nelson
Illustration
Peter Bergting, Joel Biske,
Mike Jackson, Jeff Laubenstein
Layout Design
Mark Ernst

All characters and objects illustrated by Darrel Anderson are the property of Darrel Anderson. Copyright Darrel Anderson © 1996. All Rights Reserved

SHADOWRUN® is a Registered Trademark of FASA Corporation. VIRTUAL REALITIES 2.0™ is a Trademark of FASA Corporation. Copyright © 1995 FASA Corporation. All Rights Reserved.
Printed in the U.S.A.

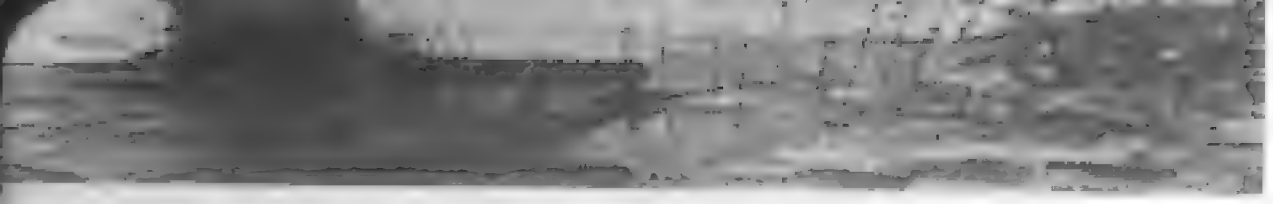
Published by
FASA Corporation
1100 W. Cermak Road
Suite B305
Chicago, IL 60608

FASA Corporation can be reached on the GEnie computer network (E-Mail—FASA) on SCORPIA'S Roundtable (page 805), and on America OnLine (E-Mail—FASALou (Earthdawn), FASABryan (BattleTech), FASAMike (Shadowrun), FASAInfo (General Information) or FASA Art (Art Comments)) in the Online Gaming area (Keyword "Gaming"). Via InterNet use <AOL Account Name>@AOL.COM, but please, no list or server subscriptions. Thanks!

INTRODUCTION

Since **Shadowrun** first appeared in 1989, players and gamemasters have sent us megapulses of invaluable feedback on the game system. Much of that feedback included concerns about the complexity of **Shadowrun**'s Matrix game mechanics and the sheer amount of playing time needed to create and map Matrix systems, build and upgrade cyberdecks, and conduct runs in the Matrix. **Virtual Realities 2.0 (VR 2.0)**, the new Matrix sourcebook for **Shadowrun, Second Edition (SRII),** takes a fresh look at cyberspace and addresses these concerns.

VR 2.0 provides new, streamlined rules for mapping Matrix systems, building and upgrading decks, conducting cybercombat, IC, utility programs—everything involved in making a Matrix run. In addition, **VR 2.0** provides entirely new software, programming tricks, and damage rules, and adds rules for creating and playing the mysterious otaku, the



hottest deckers in the Matrix. All of these new rules are designed to make the Matrix a leaner—and far meaner—place.

Though the rules presented in **VR 2.0** replace all previously published **Shadowrun** Matrix rules (unless noted otherwise), gamemasters and players should feel free, as always, to modify these rules and/or continue to use earlier versions of specific rules in their games. Throughout this book, when the text refers to the Matrix without any other qualification, we mean Matrix 2.0—the Matrix system as described in **VR 2.0.** In contrast, the text refers to specific rules or concepts published in previous **Shadowrun** products as Matrix 1.0 rules.

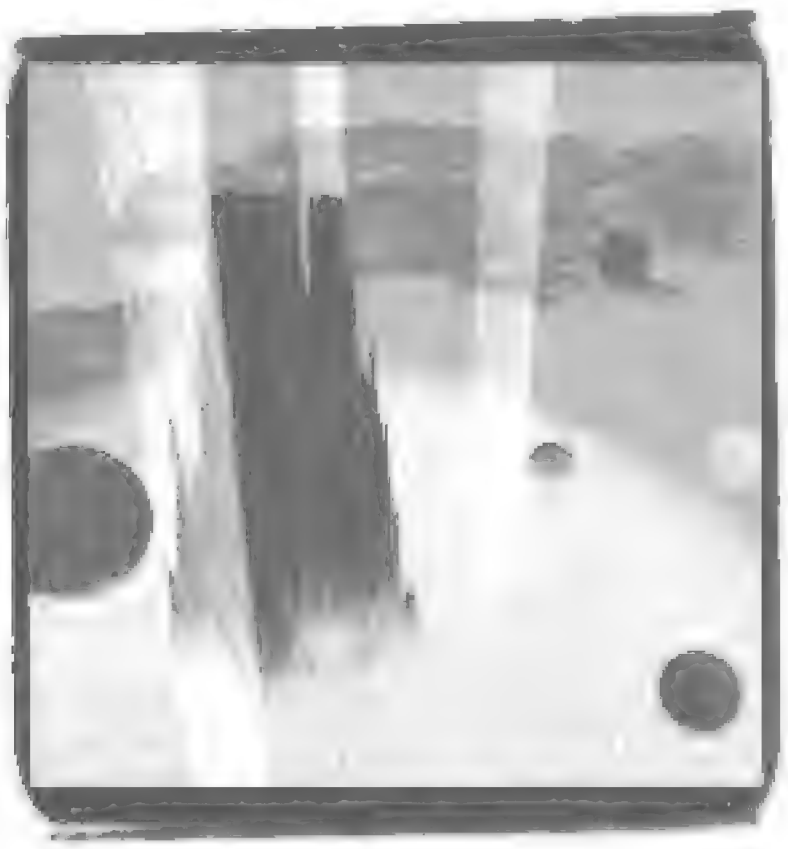
Because the Matrix, its structures, their functions and deckers form a truly holistic entity, early chapters inevitably make reference to later ones. For example, the text on **Intrusion Countermeasures** discusses certain processes, functions and tasks described in detail in the **Cybercombat** section. Though readers may not use the liberal (and possibly distracting) number of cross-references the text provides on the first read-through, they may find them useful when returning to the text for a specific rule or procedure.

The book begins with **Welcome to the Matrix,** the first of several fictional interludes scattered throughout **VR 2.0.** These intermissions give players and gamemasters a feel for the new Matrix by offering "real world" examples of concepts explained in the Matrix rules. The first rules section is **Matrix 2.0,** which describes several new basic game mechanics for running the Matrix. These game mechanics include new rules for managing grid/host connections, system and deck ratings, and system security. The section titled **Grids and Hosts** offers new ways of traversing grids and host systems and lays out new system security measures.

Intrusion Countermeasures revises all the IC programs **Shadowrun** deckers have come to know and love, and introduces several dangerous new forms. **Mapping Matrices** describes two new procedures for mapping Matrix systems and includes rules for designing system security and sculptured systems as well. The **Deckers** section outlines how to create decker characters and personas under Matrix 2.0 rules, followed by two new decker archetypes. **Cyberdecks** covers guidelines for building and upgrading decks and peripherals and offers a new contact, the deckmeister, who works out of what is described as a deck shop. The **Programs** section presents new rules for creating cyberdeck programs and self-directed program frames. **System Operations** explains how to perform the most common operations deckers use in the Matrix, and **Cybercombat** presents upgraded, expanded, and new combat rules.

Hacker House provides a selection of the latest software and hardware for sale, while **Matrix Law** presents an overview of cyberspace law. **Artificial Intelligence** includes new rules for semi-autonomous knowbots (SKs) and speculates on other forms of artificial intelligence that inhabit the Matrix. **The Otaku** provides rules for creating and playing these mysterious, legendary inhabitants of the Matrix. The final section, **Matrix Hot Spots,** offers gamemasters three off-the-rack systems they can use to challenge their decker player-characters or simply use as examples for building custom Matrix 2.0 systems. **VR 2.0** concludes with an **Appendix** full of useful reference tables and record and construction sheets compiled to help gamemasters and players use the new **VR 2.0** rules more efficiently and effectively in their games.

WELCOME TO THE MATRIX



<<<<<[Hey, anyone ever looked at what they're selling

the kids these days? I just got my daughter the new upgrade for Renraku's MatrixPal, that teaching terminal they use in suit schools, and found *this* cute piece of propaganda in the onboard HELP sim.)<<<<<

—Mom On The Run (21:03:32/7-10-55)

>>>>>(Why'n'dreck ya bother wit' shalkujin kiddy toys Momma? Give da poor little 'Trix-rat one'a yer hand-me-downs t'learn on.)<<<<<

—Digital Dawg (21:03:54/7-10-55)

>>>>>(I though' Renraku only sold those for children of registered SINners in their own corp?)<<<<<

—Bolay (21:03:59/7-10-55)

>>>>>(Who says I *bought* it? [display GRIN])<<<<<

—Mom On The Run (21:04:03/7-10-55)

WELCOME TO THE MATRIX

>>**LOAD_MatrixPal Emulation**
<< LOADING>>
<< RUNNING>>

>>**LOAD_MatrixPal HelpSim 1.0A**
<< LOADING >>
<< RUNNING >>

>>**RETRIEVE_subject-CHILD-gender**
<<RETRIEVED>>
<<(M | F)? F>>
<<SETTING ROLEMODEL ICON GENDER>>
<<(Mr. | Ms.)? Ms.>>
<<ICON LOADED>>

>(MS. PULSE: Konnbonwa, >>**RETRIEVE_subject-CHILD-name** <<NULL FIELD>> ; <<INSERTING DEFAULT>> my dear! I am Ms. Pulse, your good Matrix Pal, and I want to help YOU...LEARN..."MATRIX"!)<

>>**PAUSE_for-input**
<< PAUSE>>
<< REPEAT>>
<< PAUSE >>
<< REPEAT>>
<< PAUSE>>
<< REPEAT>>
<< PAUSE>>

>>>>>(Oh *Hoo*. Lemme guess. >>**KONNBONWA, MS. PULSE** >(display_bow)<)<<<<<
—Have Deck-Will Travel (21:04:14/7-10-55)

>(MS. PULSE: What wonderful manners! Your poor mother must be very proud of you. We shall have a great deal of fun in the **MATRIX**, as we learn how to do many responsible tasks together.)<

>>>>>(Hoo boy —start 'em early on what all good little corpsters should—*poor mother?*)<<<<<
—Brother Data (21:05:21/7-10-55)

>>>>>(The install routines ask for the student's family structure. Renraku didn't seem to have a branch in the logic for "in-vitro-conceived missing of lesbian mother living with urban tribe." Apparently this thing thinks I'm a widow.)<<<<<
—Mom On The Run (21:05:37/7-10-55)

>(MS. PULSE: To access the **MATRIX**, all good users require a **CYBERTERMINAL**. Your fine Renraku MatrixPal is a **CYBERTERMINAL**.)<

>>>>>(Big mouthful name for a deck, isn't it?)<<<<<
—Newchurn (21:05:49/7-10-55)

>>>>>(Decks is ta cyberterms what LAV panzers is to 'lectric cowmute-scooters, chummer.)<<<<<
—Digital Dawg (21:06:01/7-10-55)

>>>>>(Uh?)<<<<<
—Newchurn (21:06:17/7-10-55)

>>>>>(LAV means that cyberterminals usually load low-power chips and software, Newchurn. More important: every legal cyberterminal has a Matrix signature function burned right into the MPCP that leaves a major datatrail when it's accessing. Even novahot researchers and company programmers don't get *real* decks.)<<<<<
—Brother Data (21:06:29/7-10-55)

>>>>>(Huh. The dreck-eating cora security who chased my hoop off a Fuchi system last week had something that looked like a "real" deck. At least the combat progs she was loading sure felt real. Cost me a bucket replacing chips after that oozing mess at 3 a.m.)<<<<<
—Slithy Tove (21:06:37/7-10-55)

>>>>>(Hey Tove, maybe you gyred when you should've gimbled. Seriously, a *cyberterminal* can be just as hot as a deck, as far as processing power, memory, all the same stuff we've got. But it still leaves a signature. A *cyberdeck* doesn't.
Ah. I think Ms. Pulse is going to make my point.)<<<<<
—Brother Data (21:06:58/7-10-55)

>>**LOAD_student-icon**
<<LOADING>>
>>**DISPLAY_icon-parameters**
<<DISPLAYED>>

>(MS. PULSE: This is you, >>**RETRIEVE_subject-CHILD-name** : <<NULL FIELD>> ; <<INSERTING DEFAULT>> my dear, or rather, this is your **ICON** in the **MATRIX**. It is also called a **PERSONA**. The more important the work that you do, the more computing ability your **PERSONA** will have. The very best students receive the very best **ICONS**, so you must study *very* hard.)<

>>**DISPLAY_BOD-parameter**
<<DISPLAYED>>

>(Your **BOD** represents the system integrity of your icon.)<

>>**DISPLAY_SENSOR-parameter**
<<DISPLAYED>>

>(And your **SENSOR** lets you see things in the **MATRIX**. These abilities are controlled by your Master Persona Control Program, which experienced users of the **MATRIX** call your **MPCP**.)<

>>>>>(What the frag? She left out the rest.)<<<<<
—Newchurn (21:06:02/7-10-55)

WELCOME TO THE MATRIX

>>>>>(Not as far the corps are concerned. A legit user has Bod—every persona has Bod. And a user needs Sensor so he can tell what he's doing. But no office worker needs Evasion or Masking. And no off-the-rack terminal will have those chips mounted. Shoot, they won't even have chipslots for them on the MPCP motherboard.

A corp security decker will have Evasion, natch. Otherwise he'd be cheese for the first combat program we slot on him. But even those guys won't have Masking. You want the difference between a terminal and a deck in one, tidy little package? That's it. Masking is what makes you a big, bad outlaw.)<<<<<

—Have Deck-Will Travel (21:08:13/7-10-55)

>>>>>(A big dead outlaw if you just think yer MPCP is the only thing the corps load with signature code. Ya gotta run doctor progs on most any deck you ain't built from bare chips, an' then *maybe* you won't trail a tail like a comet Inna Grid.)<<<<<

—Top Nun (21:08:23/7-10-55)

>>>>>('Course, when they send a corp-boy out to deck the dreck outta some other poor slot's system, then he gets his Masking chip, right 'nuff.)<<<<<

—Digital Dawg (21:08:38/7-10-55)

>>>>>(Hey Dawg, v'ever see one of those whatta-they-call-ems, System-Aware-Signature-Suppression chips? SASSys let the corps have it both ways. On one of their own systems, the chip won't function. A deck mounting a Fuchi SASSy can't hide on a Fuchi system. But it works wizzer on, say, a Mitsuhama mainframe.)<<<<<

—Top Nun (21:08:49/7-10-55)

>>>>>(So ka. That explains a story going the rounds. Fuchi decker tried a run for some indesp on an Aztechnology branch office and got fried. Word was, he blew into their management's LAN and tripped every alarm in the place, as if his Masking utilities were dead code. Turns out, the local Azzies had gotten into a snit with their info management services organization and outsourced their latest hardware upgrade. They'd refitted the system with Fuchi boxes the week before. If the decker was loading SASSy chips, his Masking folded up as soon as he accessed the system and his deck identified it as "home turf.")<<<<<

—Have Deck-Will Travel (21:09:24/7-10-55)

>>>>>(Damn, I'm fragged. If he'd done some scouting before he fried his run, he'da found out what he was headin' into.)<<<<<

—Digital Dawg (21:09:37/7-10-55)

>>**DISPLAY_MPCP-signature**
<<DISPLAYED>>

>(MS. PULSE: See? The data icon knew who you were and that you have permission to see it and touch it. That is because you had the right ""PASSCODE"". When you booted your MatrixPal terminal, remember that it asked you for your own special ""PASSCODE""? That way it knew you were its proper user and that you were allowed to log on to the ""MATRIX"" and have all this fun. Every proper user has a ""PASSCODE"" that is keyed to his ""CYBERTERMINAL"". If you mistakenly used someone else's ""PASSCODE"" on your ""CYBERTERMINAL"", it would report to the system administrators so that they could help you correct your error. Now, reach out and touch the data icon.)<

>>>>>(What the dreck are those little doogers around some of the words? **->Read ""CYBERTERMINAL""**)<<<<<

—Dan D. Ruff (21:09:53/7-10-55)

<<INTERRUPT DETECTED>>
>>PAUSE_MatrixPal-HelpSim-1.0a
>>OPEN_MatrixPal-Word-Sensei-Dictionary
<<LOADING WORD SENSEI>>
<<RUNNING>>

>(Word Sensei: That is a very good question, **>>RETRIEVE_subject-CHILD-name : <<NULL FIELD>> : <<INSERTING DEFAULT>>** my dear. A *Cyberterminal* is a machine that lets users connect to the ""MATRIX"" and perform valuable tasks there. Look at this picture of your MatrixPal cyberterminal. These circuits here are the ASIST interface drivers. They let you see and hear and feel things in the ""MATRIX"". **>>RETRIEVE_subject-family-income : <<|LOWER|MIDDLE|HIGHER|?HIGHER.>> : <<TRID SERVICE |WITH|WITHOUT|?WITH>> : <<SIMSENSE=TRUE>>** You have a simsense unit in your home, thanks to your poor mother's honest work ...)<

>>>>>(Wow, Mom, you got home sim? (grin))<<<<<

—Mouthbreather (21:10:21/7-10-55)

>(... so you know how ASIST works. It lets your stories and adventures seem as if they were real. Just as simsense lets your play seem so real, the ASIST circuits in your cyberterminal make your work seem real too.

See how the ""MPCP"" chip interacts in this logic interaction descriptor diagram with the chips for your Boddw 9Ofuh'ofd9G)<

<<PRIORITY INTERRUPT>> :
<<ACKNOWLEDGED>> : <<WAITING>>

>>>>>(Uh, Danaruff, haven't you ever seen an access sensitive help pointer before? It dates back to the old hypertext models of relational data. The thing to remember on a run is that this can be the same kind of trigger that sets off data bombs in booby trapped files. Of course, those triggers don't light up with friendly stars—the first thing you know about them is when they blow up in the middle of your datastream.

The thing to remember for now is that we all know what the words mean, so KEEP YOUR FRAGGING PAWS OFF THE WORDS WITH STARS. Okay? If you wanna play with the toys, wait'll we're out of conference and you aren't using our access time.)<<<<<

—Bojay (21:10:49/7-10-55)

WELCOME TO THE MATRIX

>>>>>(Right. Before our little interruption, the Pulser was telling us about passcodes. Now, just how do they figure into decks?)<<<<<

—Newchum (21:11.17/7-10-55)

>>>>>(No offense, Newchum, but you *are* living up to your handle tonight. If it's a deck, it doesn't use passcodes. Terminals use them. Most systems that issue codes won't allow a stealthed terminal—a cyberdeck—to logon.

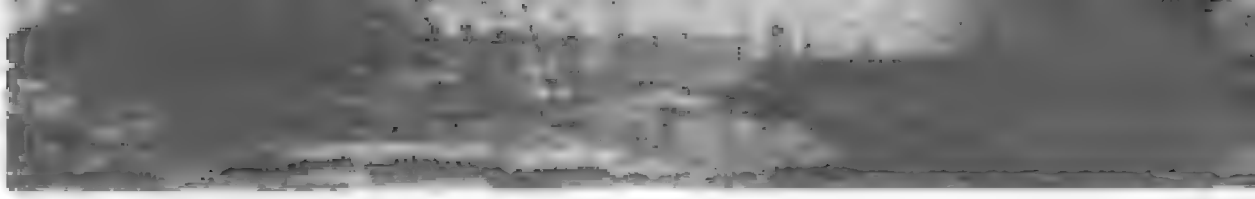
Okay, let's back up a pulse or two. You must have had a pass code sometime, right? To the school library or something?)<<<<<

—Brother Data (21:11.34/7-10-55)

>>>>>(Sure. Of course, once I figured out the access routines for the grades database, I didn't do too much library time. Studying decks got me more A's than studying Calculus.)<<<<<

—Newchum (21:12:08/7-10-55)

WELCOME TO THE MATRIX



>>>>>(Ah—that first, fatal step on the road to datacrime. You may pay for cutting math class if you stay in this biz, but that's a lecture for a later time. OK, a "*USER*" (how'd'you like my impression of Ms. Pulse?) is someone who logs on to a host using a legal terminal and a "*PASSCODE*". That passcode has been validated on the host and is usually tied to a specific Matrix signature. Those are the easy ones. Some are tied to a specific user and require a monitor linkup that sends a live EEG or retina scan to complete the access algorithm.

Passcodes have specific levels of validation. The host lets you do what your validation says and nothing else. Try to do something your not authorized for and it leaves a record. If it's minor, you get your wrist slapped, maybe they crank down your access level even lower for awhile. Try something major, alarms go off and you are in deep dreck.)<<<<<

—Brother Data (21:12:53/7-10-55)

>>>>>(But on the school system, I got out of validated control and into the database and didn't get an alarm. Dreck, I got a diploma—with honors yet.)<<<<<

—Newchum (21:13:02/7-10-55)

>>>>>(Did you just open the database and jazz up your grades?)<<<<<

—Brother Data (21:13:19/7-10-55)

>>>>>(Heck no. I had to fuzz out my terminal's ID co—oh DUH! Do I feel DUMB! Sure, I had to fuzz out my ID code, so I cooked a clone of the processor chip in 'tronics shop and got some code to double-interrupt the opsys monitor mode off a bulletin board.)<<<<<

—Newchum (21:13:38/7-10-55)

>>>>>(Congrats, kid. Ya turned into a decker. Stealthed yer MPCP and ran a Sleaze t'o augment yer Maskin', even if ya din't have no Maskin' yet. An' it's da last time you'll git it dat easy, so don't go thinkin' the corps got tinkertoy 'puters like the one in yer old school.)<<<<<

—Digital Dawg (21:14:09/7-10-55)

>>>>>(Too right, Dawgers. Kid, no matter how hot you think you are with a deck now, you need to get twice as good to have even a bare-hooped chance of surviving on a real host. And skill and attitude won't help without the hard and soft to back 'em up.

Get your skill with computers as hot as it can get, get the best Icepick software you can buy, or learn to write your own. Spend most of your downtime stayin' on top of the SOTA—the state-of-the-fraggin'-art—and then you're a decker. You can go anywhere in the Matrix an' do anything. Frag up, you'll wish you'd stayed a user, diddling the ten-yen files that recognize yer passcode.)<<<<<

—Tap Nun (21:14:02/7-10-55)

>>>>>(Look, folks, can we do the sage-advice-to-young-decker-of-promise thing later? I want more feedback on this MatrixPal thing.)<<<<<

—Mom On The Run (21:14:26/7-10-55)

>>>>>(Go for it, Momma.)<<<<<

—Digital Dawg (21:15:08/7-10-55)

>> **RELOAD_registers-HelpSim-1.0A**
<<LOADING>>
>> **RESUME**

>>**DISPLAY_datafile-access-log**
<<DISPLAYED>>

>(**Ms. Pulse: If you look at the file header on top of the data icon, you can see your "*MATRIX*" name, your "*MPCP*" "*SIGNATURE*", logged in the proper record. When you have learned more about the "*MATRIX*", you will see that all your work has the same "*SIGNATURE*" attached to it, so that everyone will know what a fine student you are and how well you do important work. Your poor mother will be very proud!**)<

>>>>>(Yeah, they always blame the mother. Y'know, Dawg, that idea of yours about fitting my girl out with one of my old decks is looking better by the second.)<<<<<

—Mom On The Run (21:16:11/7-10-55)

>>>>>(So if I got this straight, there's three major classes of people on the Matrix? Straight users, with cyberterminals loading Body and Sensor programs. Security people working on their own systems, who have Evasion so they can handle 'net combat. And us? I mean, people with Masking that suppresses the Persona signature and lets them work without leaving a datatrail.)<<<<<

— Newchum (21:016:23/7-10-55)

>>>>>(Bingo.)<<<<<

—Digital Dawg (21:16:34/7-10-55)

>(**MS. PULSE: Some foolish people say that they can pretend to be someone else in the "*MATRIX*". But don't you believe it. No proper person would even try such a thing, and improper persons who do quickly discover that it is impossible.**)<

>>>>>(Oh DRECK! I >>>>>(See what I meant >>>>>(They fraggin' wish >>>>>(Yeah, ri>>>(MS. PULSE: Now for our quiz on whatfh938f;/hnf <<**OUT_OF_MEMORY : ABORT**>> <<ght.]<<<<<>>>>>(Uh, guys, not all at>>>>>(don't believe >>!<<**BUFFER OVERLOAD**>>!<<[illegible]>(once, this is a low band >>>>>(the kid needs a REAL deck AH&.|hha|;let|gmnvse4.....

<<**MEMFAULT**>>
<<**RESET**>>
<<**RELOADING**>>

MATRIX 2.0

Matrix *n.* 1. The world computing and telecommunications network. 2. Virtual interface software convention used to access computer systems.

•WorldWide WordWatch, 2056 Update

The Matrix is an interlocking system of computers, called Hosts, linked together by the Grid – the world telecommunications network. Any user with the right passcodes can access any system in the Matrix. This degree of connectivity is required both by the laws of the corporate [illegible] by the absolute necessity of keeping data current in a world where profound changes [illegible]

BERGTING 95

The human mind cannot directly comprehend the flow of data in the Matrix. If users were restricted to old-tech tools—command lines, file names, programs in clumsy procedural languages—the system would be unmanageable. For example, a user who wanted to read a computer file in 1995 would type in some wearisome command, find the file in a window, or access the desired information in some other, equally clumsy method. But after the Crash of 2029, ASIST technology opened up the possibilities of actual DNI (Direct Neural Interface) access to computers, and the Matrix was born. Now, the user takes a microsecond-long trip through a computer-generated landscape in order to find a file. If the user is validated to see a file, he finds it right where he expects to find it. The interface routines he uses may look like clerical workers, or a huge library, or simply appear as dazzling patterns of energy. The user sees the file, touches it, and the data downloads into his cyberterminal.

Users do not need to remember codes, command sets, or file names. If they want something, they go get it. If they want to program a process for the laboratory or an assembly line, they mentally perform the motions involved or build a model using virtual components, and the computer learns from them. Modern chemists, for example, build molecules according to formulae as if they were using children's building blocks. The computer then translates these actions into a program that will operate the process in the real world.

Legitimate users have registered cyberterminals that identify themselves to the Matrix at every step. But the cyberdecks of deckers have no Matrix identifiers. Deckers remain anonymous, and when everything goes right they can dance through the secrets of the Matrix, laughing at security measures. Of course, when things go wrong, they can die in the Matrix as well.

These concepts remain unchanged from those presented in the basic **Shadowrun** rules. However, **Virtual Realities 2.0** offers new game mechanics to simulate these concepts. The most important new game mechanics are system operations and System Tests. A system operation is simply a list of the game information a decker needs to perform a task in the Matrix. Each system operation lists the System Test(s) required to perform the chosen task, the name of any utility programs that augment the test, the type of action the decker has to expend to perform the task, and a description of what happens when he attempts to do so. (Several pre-designed system operations appear in the section titled **System Operations**, p. 108. A quick-reference list of operations also appears in the **Appendix**, p. 162.)

Under the revised Matrix 2.0 rules, a System Test consists of an opposed test between the decker and the system he is infiltrating (note that the term System Test is used differently than in the Matrix 1.0 rules). The decker makes an appropriate Subsystem Test. The gamemaster makes a Security Test for the system against the decker's Detection Factor.

This section provides an overview of these and other new game mechanics presented in Matrix 2.0. Subsequent sections provide more detailed instructions for using these new rules.

ICONS

Every object a user sees in the Matrix is an *icon*. Users have special icons called *personas*. When we talk about a decker's persona, we may also refer to his icon, or his online icon.

As real as the experience seems, a decker never physically enters the Matrix. His meatbod remains sitting where the cyberdeck connects to the Matrix, the *jackpoint*. The deck feeds the decker an ASIST signal, in the same way as a simsense set, that makes him think he is somewhere else. That somewhere else is the Matrix.

The persona programs and utilities running on the cyberdeck are master copies of the software that makes decking possible. When a decker logs on to a grid or host, the cyberdeck loads versions of those programs into the Matrix system. In a nutshell, deckers deal with two sets of programs: the *front-end* programs on the deck, which convert the decker's neural impulses into computer command transactions; and server programs in the Matrix, which convert those commands into programming commands that influence what the system does.

These online servers form the decker's persona. Through the persona, the decker experiences the environment of the system where he is active. The persona programs send transactions back from the Matrix to the cyberdeck, where the front-end programs convert them into simsense experiences.

This system creates two complexes: the meat decker and his front-end programs on the deck; and the decker's online icon, which runs on the computers that create the Matrix. Disconnect the deck, crash the persona, or sever the commlink that connects them, and the decker is offline, jacked out, dumped.

GRIDS AND HOSTS

The Matrix consists of telecommunications networks (grids) and computer systems (hosts). Grids carry voice and data transmissions—everything from local phone calls to gigapulse data packets. Hosts are what used to be called mainframe computers, but mainframes in the Sixth World do not have to be single-powerful pieces of hardware. In fact, many of them are linked series of massive parallel processors in smaller configurations. These provide just as much jam as a single supercomputer. Simply put, a host in **Shadowrun** is any computer important enough for a decker to invade and tough enough to fight back.

MATRIX TOPOLOGY

The connections between grids and hosts define the basic topology of the Matrix. Only four types of connections exist: open-access, tiered-access, host-host access, and private-grid access connections. But multiply those connections by millions of hosts, criss-crossing through the grids, and you end up with a network so complex only a decker could love it.

Open Access

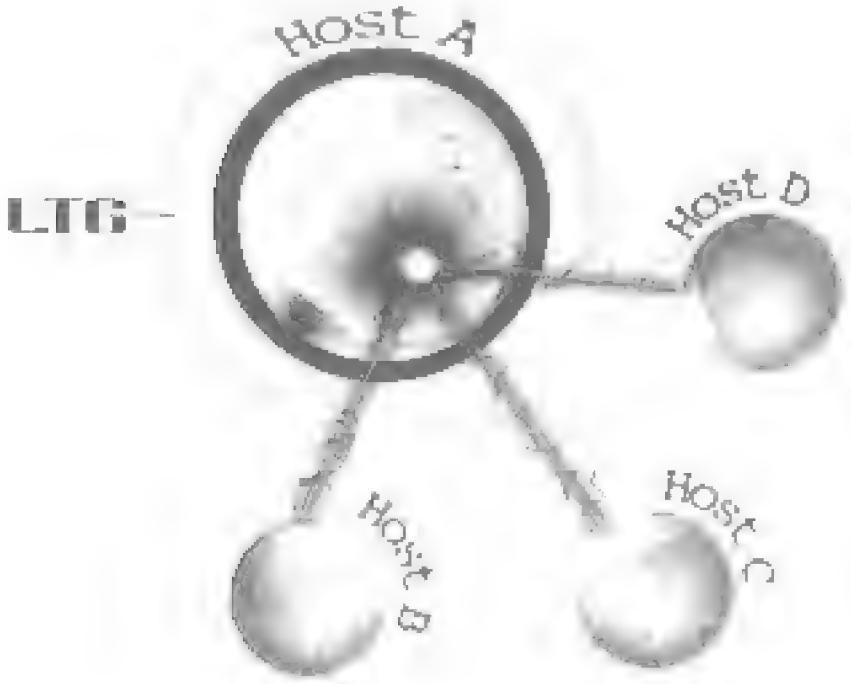
Most computer systems use the open-access connection. Quite simply, any host connected directly to a grid has an open access connection. Any user, anywhere in the world, can use the public grids to access such hosts. All four of the Hosts in the Open Access Diagram are attached to the same LTG (Local Telecommunications Grid). A decker can access any of them by connecting to that LTG. If he is already logged on to one host, he can disconnect from that host and access another host without terminating his Matrix run.

Tiered Access

In the Tiered Access Diagram, only Host A is connected directly to the grid. Hosts B, C, and D are connected only to Host A. In this arrangement, Host A functions as a *first-tier* system; Hosts B, C, and D function as *second-tier* systems. Any user who wants to access Hosts B, C, or D must first pass through Host A. To get from Host B to Host C or D, the decker must re-enter Host A.

First-tier systems can be designed to act as switchers, passing authorized users into second-tier hosts. Or first-tier systems may allow users to pass to a private local telecommunications grid (PLTG) that provides access to second-tier systems.

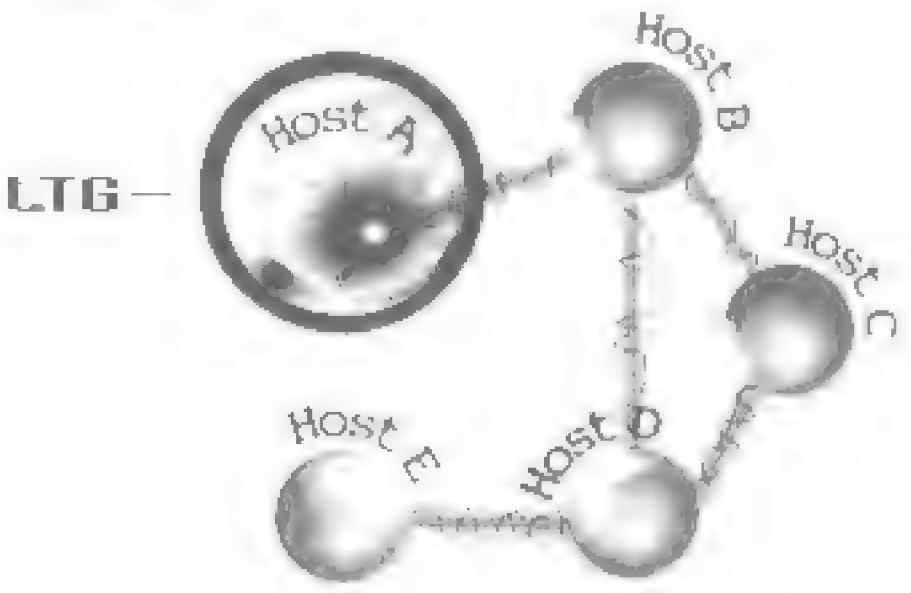
The classic Matrix security concept called *chokepoint* design is a specific application of tiered access. In chokepoint systems, the first-tier hosts carry as vicious security as is possible, with the second-tier hosts running relatively lower security.



Host-Host Access

A host-host access configuration consists of a set of hosts linked directly to one another. No single host defends the others. All perform specific jobs but must share data to do so. In Matrix 1.0, such a system would have been mapped as a series of SANs shared by multiple CPUs, or maybe just a lot of SPUs under a powerful CPU.

Host-host configurations commonly appear in corporate schemas. Typically, only a few hosts connect directly to public grids, but numerous machines in the second tier of the system are linked to each other. Deckers can only access hosts through other computers that are linked to them. For example, a decker in the LTG of the system in the Host-Host Diagram would have to pass through Hosts B and D or through Hosts B, C and D to reach Host E.

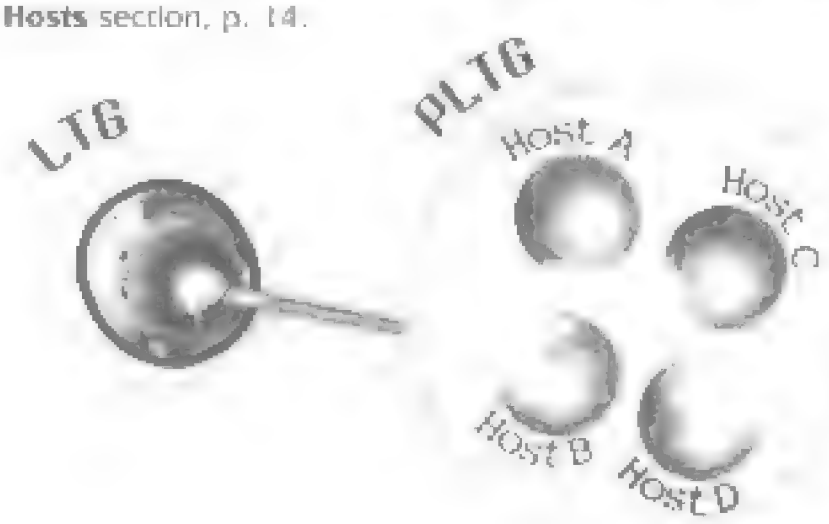


Private Grid Access

A private grid (PLTG) represents a proprietary communications network inhabited solely by the hosts of a given corporation, government, or consortium. These can range from small, local networks called LANs (Local Area Networks) to global PLTGs. Once a decker has accessed any host in a private grid, he can access any other host connected to that grid.

Within a PLTG, hosts may be organized in tiered or host-host access configurations—and are. In the Sixth World, paranoia is not a pathology for Matrix-security designers. It's a requirement.

For a more detailed description of PLTGs, see the **Grids and Hosts** section, p. 14.



SYSTEM RATINGS

The Matrix 1.0 rules forced gamemasters to map out each host in detail, creating different ratings for each system node. In Matrix 2.0, every system, whether a grid or a host, has a Security Rating and five subsystem ratings—Access, Control, Index, Files and Slave. In Matrix 2.0, these ratings are collectively known as the System Rating (note that this use of the term is completely different from the definition of *System Rating* in the original Matrix rules.)

See **Grids and Hosts**, p. 14, for rules for determining System Ratings.

SECURITY RATING

A Security Rating consists of a security code (a color) and a Security Value (a number). (The Security Value is called the System Rating in the **SR II** rulebook.)

The four security codes are Blue (little or no security), Green (average security), Orange (significant security), and Red (high security). Reportedly, some systems contain killer defenses that send their security codes right off the 'official' color scale. Decker slang calls these *Ultra-Violet*, *UV*, or *black* systems. The security environments of UV hosts are qualitatively different from those of other hosts. (See **Grids and Hosts**, p. 14, for more information on UV hosts.)

Generally, Security Values range from 4 to 12, though they sometimes range higher. Double-digit values represent extreme system security. The Security Value indicates the number of dice the gamemaster rolls to oppose a decker's system tests.

SUBSYSTEM RATINGS

The five subsystem ratings—Access, Control, Index, Files, and Slave—represent the resistance of a system's subsystems to unauthorized manipulations by a decker. These ratings function as target numbers for all the tests a decker makes when attempting to manipulate the system illegally. For example, an unauthorized decker trying to read files on a system would use his Computer Skill to make an Access Test and a Files Test. The Access Test, made against the system's Access Rating, gets the decker into the host or grid. The Files Test, made against the system's File Rating, enables him to read the files themselves. (See **Systems Tests**, p. 19, for further information on Systems Tests.)

Keep in mind that a high subsystem rating does not impede authorized users from using the subsystem. For example, a high Access Rating does not affect the log-on procedures of authorized users. It simply makes illegal log-on attempts more difficult.

Access Rating

The Access Rating measures a system's resistance to unauthorized access. To access a grid, an unauthorized decker must make a successful Access Test against the grid's Access Rating. To log on to a host without a valid passcode, a decker must make a successful Access Test against the host's Access Rating.

Control Rating

The Control Rating measures a system's resistance to unauthorized administrative commands. For example, an unauthorized decker attempting to kick a legitimate user off a host must make a successful Control Test against the host's Control Rating. Generally, successful Control Tests will enable deckers to reprogram a system or defeat its security measures.

Index Rating

The Index Rating measures a system's resistance to unauthorized searches. An unauthorized decker searching a grid or host for a system address or specific file must make an Index Test against the grid/host's Index Rating.

Files Rating

Deckers must make Files Tests against the Files Ratings whenever they attempt to illegally read or write datafiles in a system. Deckers must also make Files Tests to decrypt encoded files and send output to devices such as faxprinters or chip cookers.

Slave Rating

The Slave Rating governs the operation of remote devices controlled by a system. For example, a successful Slave Test enables an unauthorized decker to take control of devices manipulated by a host, such as security cameras and elevators.

RATING FORMAT

Matrix 2.0 describes System Ratings using the following shorthand format:

Security Code-Security Value/Access/Control/Index/Files/Slave

For example, a Red-6 system with Access and Index Ratings of 10, a Control Rating of 12, and Files and Slave Ratings equal to 9 would be written:

Red-6/10/12/10/9/9

The acronym 'ACIFS'—**A**ccess **C**ontrol **I**ndex **F**iles **S**lave—may make remembering this format easier. The gamemaster may also create a simplified format by eliminating the Files and Slave ratings. Generally, Index, Files and Slave Ratings do not differ greatly, so the gamemaster may simply average the three values, rounding fractions down. In this simplified format, the example above would become:

Red-6/10/12/9

A System Design Sheet for recording further details of a system appears in the **Appendix**, p. 156.

DECK RATINGS

The power of a decker's persona is defined by the processing power of his deck's MPCP (Master Persona Control Program), and his bod, sensor, evasion, and masking utility programs. The MPCP represents the master operating system for the deck and has an MPCP Rating that measures its ability to take damage and continue functioning. The bod, sensor, evasion, and masking programs are called persona programs. The numeric ratings of these programs serve as the "attributes" for the decker's persona and are used whenever tests are made against the decker while in the Matrix. Deckers also use utility programs, rated in the same manner.

The MPCP Rating is the central value for cyberdecks. The MPCP Rating multiplied by 3 equals the maximum total of the deck's persona programs. No single Persona Rating may exceed the MPCP Rating, and the maximum value for most utility programs is equal to the MPCP Rating.

The shorthand format for describing a cyberdeck's ratings is: MPCP Rating/Bod Rating/Evasion Rating/Masking Rating/Sensor Rating

A deck with MPCP-8 and all Persona programs distributed equally among the maximum total (3 x 8 = 24), would be written as follows:

MPCP-8/6/6/6/6

If the decker increased his Bod Rating by 2 points, to the maximum of 8, he'd have to reduce the other Persona programs by a total of 2. If he decided to reduce his Evasion and Sensor ratings by 1 each, the deck's ratings would be written:

MPCP-8/8/5/6/5

All of these programs are discussed in more detail in the **Deckers**, **Cyberdecks**, and **Programs** sections.

DETECTION FACTOR

The gamemaster uses the decker's Detection Factor as the target number when making tests to detect a decker's presence or prevent a decker from performing actions within the Matrix (see **System Tests**, p. 19). To determine the decker's Detection Factor, calculate the average (round up) of the decker's Masking

Rating and Sleaze program rating. For example, an MPCP 8/6/8/6/4 deck, running a Sleaze-8 program, would have a Detection Factor of 7. That's [6 (Masking) + 8 (Sleaze Rating) = 14] divided by 2 = 7

If a decker is not running a Sleaze program, the Detection Factor equals half the Masking Rating. This makes a drek-hot Sleaze program a necessity for any decker with aspirations, not to mention a keen sense of self-preservation.

THE HACKING POOL

The Matrix 2.0 system creates a much smaller Hacking Pool than Matrix 1.0. To determine a decker's Matrix 2.0 Hacking Pool, add the decker's Intelligence Rating and his deck's MPCP Rating, divide the total by 3 and round down. (Any increases of a decker's Intelligence apply to his Hacking Pool as well, whether they come from cyberware or magic. Increases are cumulative unless the gamemaster chooses to use the optional Multiple Improvements rule provided on p. 19.) The final figure is the Matrix 2.0 Hacking Pool.

Generally, Hacking Pool dice may be added to any test made in the Matrix—System Tests, attack or defense tests, maneuvers, programming, or attribute tests. However, characters may not use Hacking Pool dice in the following circumstances.

First, dice from the Hacking Pool cannot enhance Initiative rolls or doctrinal dice rolls such as 'roll 1D6 to see how long it will be before the host crashes.' Those are not tests in the **Shadowrun** sense of a dice roll against a target number.

Additionally, Hacking Pool dice cannot be used in Body or Willpower tests made to resist the effects of gray or black IC that is damaging the decker. Only Karma Pool dice, enhancements connected to the cyberdeck, or bioware/magic boosts to the decker's Body or Willpower can help in such situations.

Cyberware and the Pool

Any cybertech item from **Shadowrun, Second Edition; Shadowtech;** or **Cybertechnology** that raises Intelligence may affect the Hacking Pool, as noted above. Two specific examples of such items, often employed by wiz deckers, require special comment. These are encephalon implants and the Math SPU (see **Shadowtech**, pp. 49 and 52).

Encephalon implants improve Intelligence, and this bonus figures into the calculation of the Hacking Pool. In addition, encephalons provide Task Pool dice for certain activities. If the decker has slotted a Computer skillsoft with a rating equal to or greater than his own skill, or if he only uses the skill granted by the skillsoft, the Task Pool dice also go into the Hacking Pool. Note that skillwires are not required to use a Computer activesoft for decking if the decker uses an encephalon implant. However, skillwires are required to use the skillsoft without an encephalon implant.

A Math SPU increases a character's Intelligence by half its rating for purposes of decking. For example, a Math SPU of Rating 4 offers a substantial bonus to the decker's Hacking Pool, especially if he does not have a million nuyen to buy components to build a drek-hot cyberdeck. For 23,000 nuyen and a trifling Essence cost, it represents an excellent investment.

Optional Rule: Multiple Improvements

The optional multiple improvements rule may be used to prevent players from using magical and cybernetic Intelligence bonuses to produce 'superdecker' characters who possess excessive Hacking Pools. Under this rule, the character may apply only one Intelligence bonus to the Hacking Pool. Use the highest bonus or allow the player to choose which enhancement applies to the pool. Generally, an encephalon implant represents the best choice, because its Task Pool dice directly enhance the Hacking Pool.

The multiple improvements rule prevents players from creating superdeckers who buy every last advantage they can get in cyberware and have a friendly mage with that Increase Attribute spell constantly on tap. It forces the decker to get his extra edge from superior decks and utilities, which will result in characters who are *extremely* hungry for cash, especially if the gamemaster employs the SOTA rules (see **Deckers**, p. 74). This need for cash also provides a weakness gamemasters may exploit when luring players into scripted adventures.

SYSTEM TESTS

As noted in the section introduction, unauthorized deckers must make System Tests whenever they attempt to perform tasks within the Matrix. System Tests are always resolved as opposed tests between the decker and the target host/grid. The decker uses his Computing skill to make the Subsystem Test appropriate to the task he is attempting. For example, logging on to a host requires an Access Test against the system's Access Rating. Editing a file on that host requires a Files Test, and so on. The target number for these tests is modified by any utility programs the decker is running and any appropriate situation modifiers (system alert levels, damaged decker or deck, and so on).

For the opposed test, the gamemaster rolls the host/grid's Security Value (on a Red-6 host, that would be 6 dice) against the decker's Detection Factor. Apply any appropriate situation modifiers to the Detection Factor.

The following example illustrates the first step any decker is going to take: getting into the host within which he wants to operate.

HeadCrash has Computing-8 and an MPCP-8/6/6/6/6 deck. He is running Sleaze-5, so his Detection Factor is 6 (6 + 5 = 11, divided by 2 = 5.5, rounded up). He is also running Deception-4. Head is decking into a Red-8 host with Access-11. He needs to make an Access Test to log on.

HeadCrash rolls 6 dice, his Computing skill. The target number is: 11 (Access Rating) minus 4 (Deception Rating), for a final Access Test Target Number of 7.

The gamemaster rolls 8 dice, the host's Security Value, against a Target Number 6, Head's Detection Factor.

HeadCrash achieves results of 2,2,3,4,5,9, for one success against the Target Number of 7. The host achieves results of 1,2,2,2,3,3,5,5—no successes. HeadCrash logs on to the host. He got lucky, and he'd better hope his luck holds.

Note that had HeadCrash not been running the Deception program, his Target Number would have been 11 rather than 7. He'd have had no successes, and would have failed to log on. Moral: you can't do anything unless you can get into a host in the first place, so a good Deception program is a must for any decker interested in hosts with high security levels.

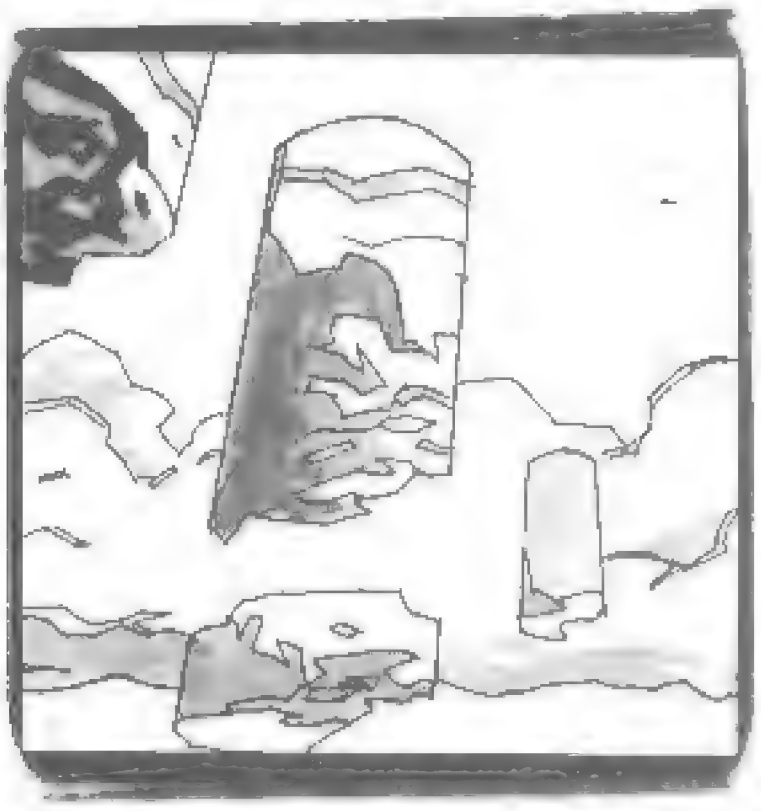
If the decker achieves more successes than the host, he wins the test and succeeds at whatever task he is attempting to perform. If the host achieves more successes, the decker fails. Regardless of the test outcome, the gamemaster records the host's number of successes and adds the total to any previous successes the host achieved in System Tests against the decker. This running total creates the security tally.

SECURITY TALLY

The gamemaster tallies all the successes a host/grid achieves while opposing a decker in System Tests. This tally runs as long as the decker is logged on to that particular host/grid. When the tally reaches a level set by the gamemaster, it may trigger actions within the host/grid, determined by the gamemaster and ranging from the activation of black IC programs to nothing at all. The bottom line is that decker never knows what will happen as a result of his next test, or how many more tests he can safely afford before the host/grid catches on to his presence and does its best to crash him.

More details on security tallies and how to use them appear in the gamemaster-only section **Matrix Hot Spots**, p. 149. The system sheaves (archetypes for a Matrix system) provided in that section define the reaction of a host/grid to intruders: slow and cautious, or fast and lethal.

THINGS TO COME



<<<<<[It's all changing again.]>>>>>

—Ambrose (**:**:**/12-24-56)

>>>>>(Hey, pops, that's its job.)<<<<<

—Laughing Man (77:77:77/12-24-56)

>>>>>(Pops from you counts as irony, I think. After '29, we knew the Matrix genie was out of the bottle. The tech curve was a roller coaster even then. But once ASIST, deck code, and IC came into play, it's become an FTL roller coaster. How can anyone know where it will go? Two years ago, for example, sculpted systems were so rare people jacked in just to look at them. Now every penny-dreadful host on the planet has some sculpture.)<<<<<

Ambrose (**:**:**/12-24-56)

>>>>>(That's every ten-nuyen host now—Inflation, you know.)<<<<<

Laughing Man (77:77:77/12-24-56)

BERGTING 95

THINGS TO COME

>>>>>>>Classic. Legend still remained. <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>No reason it should. You just have to keep a sense of perspective. You see the world in a grain of sand. I see your daddy's backyard. <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>Not my daddy. Will had a nasty dissolution. Made it hell to be around him. <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>Whatever. He meant keeping a sense of wonder about everything. But today, we do have wetlasts grains of sand—or bits of quartz and diatoms or anyway. Close enough. <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>But what about you? I see kids don't know who Blake was. They think a guitar is a console controlled with VR. They've never had to read or write or do mental math. If they don't even know what gophers really were, how do I figure someone was crazy for climbing one? The metaphor has turned into a real thing in their world. The virtual world. They could care less what the word means in the meatworld. How sweet is that? <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>Maybe they're right? <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>You know better than that. What's the value of the Matrix if it doesn't make us better when we're not sucked into it? <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>Hell, might as well go to Graceland or Wonderland or Jerusalem. And while you're at it, ask Jerusalem's mad poet Billy Blake. He'd recommend a meditation on those teaching stories before you finish entering the gopher hole. <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>Consciousness is the quadriplegic with telepathic synthesizers? <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>No. Don't mind Jerusalem. Just myasthenia gravis in your real world. Illness or disease or pity, and an easy model for the prevalent walking-around dead inside in the Matrix. They're almost unstoppable. <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>But optional. Can't we just <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>Well, if we split the easy parallel system and dig over to that narrow bound route between Japan and the Asian hegemon and replace the right node with the right slave machines, we'd cut electrical power to most of Seattle. Do you know how many people that could kill? What's more real than that? <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>Actually, given the events centered on us, we'd get very far trying to sell that one at IC. But are you saying we're reduced totally by our ability to destroy? <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>When haven't we? Today, the people with the most information call the tune and define reality. It used to be the guy with the best armed knights to defend his land. But from that strength comes beauty, sometimes even peace. Cities can rip out their old core like a hypoxic, but most of her spare cycles go to upgrading the synthetic chemistry via Matrix of her components. Without that strength, would she have learned to make music like a goddess? <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>Your general argument is naive. Consider the liberation of the East European nations from the Soviet empire in the 1990s. Not a shot was fired, nor a weapon needed. Across the expanse of the continent, the pen was indeed mightier than the sword. Armies and tanks could not save the Ceausescus against a playwright who would have named Frank Zappa cultural minister. But most hackers are just gutterpunks with heads or teeth. They wouldn't know real liberation or freedom if it hit them over the head. <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>And most of the cataphracts were stone killers. Does that make the ones who reasoned a gopher any less valuable? <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>No, of course not. It didn't then, and it doesn't now. But the new wave in the grids—so many could die. So many we can't better ways to kill. And over what? Paydata. <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>Plus ça change. <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>Oh, come on, not that again. <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>Barry, by his term, the nature of the technocracy curve dictates its acceleration until the infrastructure collapses or it approaches what Vinge called a singularity. <<<<<<<
—Laughing Man (**.**.**/12:24:56)

>>>>>>>Of course. And the infrastructure is nearing collapse in many areas. <<<<<<<
—Ambrose (**.**.**/12:24:56)

>>>>>>>But the unpredictability of the results of technological

change are nearing uncertainty in equally many areas. So will we have a cultural crash first, or a cultural transformation?)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(Some of us are worried about the crash.)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(Ah, but think of the possibilities in the transformation.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(And the children?)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(Most of them would have died by now without the change. Street orphans, living like devil rats, or prey for hells more brutal than any we ever walked through.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(But what is IT up to? And why does IT want children?)<<<<<

—Ambrose (**:** **/12-24-56)

>>>>>(What's IT up to? I could tell you more about what the dragons want than I could about IT's plans. But of course IT wants children. Only the very young, even the ones who haven't formed speech yet, can learn to see the Matrix that way. If kids grow up speaking two languages, we say they are bilingual. Two native tongues, more profound imprinting than mere fluency. What shall we call these then? Bicosmic?)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(Bicosmic.)<<<<<

—Ambrose (**:** **/12-24-56)

>>>>>(Some would call sending an infant to grow up far from home ignorant of its parentage, equally cruel.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(But I was there, almost the whole time, caring for them.)<<<<<

—Ambrose (**:** **/12-24-56)

>>>>>(And IT is there every nanosecond, caring for them, in IT's way.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(I paid for what I did. What kind of being uses infants that way?)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(You ask that tonight, of all nights in the year? "For unto us a Child is born . . .")<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(Don't blaspheme.)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(I was not trying to offend. You follow your passions, I follow mine. You see all the hope of the world in the aim of a child unlike any other which you remember on this night. You alone saw the hope of your land and its people in the birth of a child. Perhaps IT puts its hope in children who are slim to be born.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(Do you think IT knows what's coming?)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(Do any of us? IT wasn't around the last time, but I don't think anyone on this planet can say what resources IT has developed. What knowledge.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(I mean . . .)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(I know what you mean. I know better than most what's coming this time. But there has never been anything like the Matrix before. How this new cosmos will combine with the powers of the old, I don't know. Maybe the wall between them will stay up, maybe it won't. Right now it seems solid. But next year? Or next decade? Even we can't begin to guess.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(I suppose not. Is that your singularity? When nothing in past experience gives you sufficient data points from which to extrapolate?)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(Close enough. I can tell you one thing, though:)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(What's that?)<<<<<

—Ambrose (**:**:**/12-24-56)

>>>>>(It'll be interesting.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>>>>(Oh, you're a great help.)<<<<<

—Amorose (**:**:**/12-24-56)

>>>>>(Ah well, you wouldn't want it to be easy. How would you?

Merry Christmas Ambrose.)<<<<<

—Laughing Man (??:??:??/12-24-56)

>>CUI ACCESS

<<ACCESS CUI<<

GRIDS AND HOSTS

"No, sir. We don't have to care. We're the phone company."

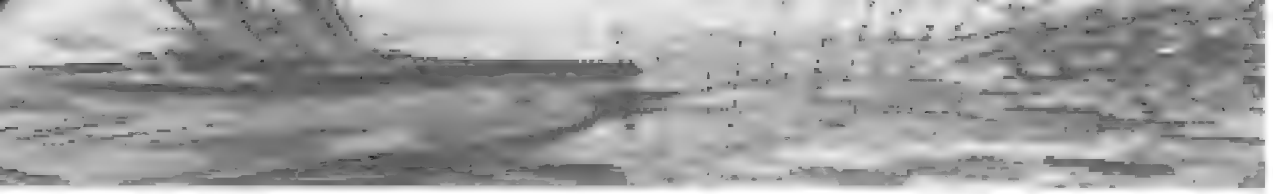
-20th century performance artist Lily Tomlin

"No, citizen. We don't have to care. We're the phone company. This is a recording."

-21st century service announcement

This section describes grids (systems of connection) and hosts (computer systems). It provides information on ratings for these systems, various methods of accessing them, and other useful data for deckers

ACCESS
ARKONIC
TIRAN NOC



GRIDS

The term grid is often used as a synonym for the Matrix, but in Matrix 2.0 the term denotes a telecommunications net—in other words, the phone company. The situation in 2056 can be traced back to the years following the Crash of '29, when most developed nations returned to massive, single-vendor monopolies for their common-carrier communications. This arrangement was intended to prevent another Crash, of course, not to satisfy the demands of the megacorps, control citizens' access to data, or anything like that.

National grids consist of one or more Regional Telecommunications Grids (RTG), owned and maintained by a monopoly vendor. An RTG usually encompasses many dependent Local Telecommunications Grids (LTG). LTGs are analogous to the area codes of 20th-century communication networks and are maintained by local subsidiaries or franchises of the parent company.

REGIONAL TELECOMMUNICATION GRIDS (RTG)

The topology of the North American RTGs appears on p. 164. **SR II**. The Matrix 2.0 System Ratings for these RTGs are listed in the North American RTG System Ratings table. The Overseas RTG System Ratings table provides Matrix 2.0 System Ratings for overseas RTGs. Because public grids carry such enormous volumes of traffic and possess relatively few security resources, these ratings are lower than those of a typical host computer.

When generating System Ratings for a public grid not on the list, assume the grid has an Intrusion Difficulty of Easy and subtract 2 from all ratings (for a range of 6 to 8). See Intrusion Difficulty, p. 31, for details on generating ratings.

To minimize the impact of the Matrix 2.0 upgrade on previously published Shadowrun materials, the grids retain their original Security Ratings.

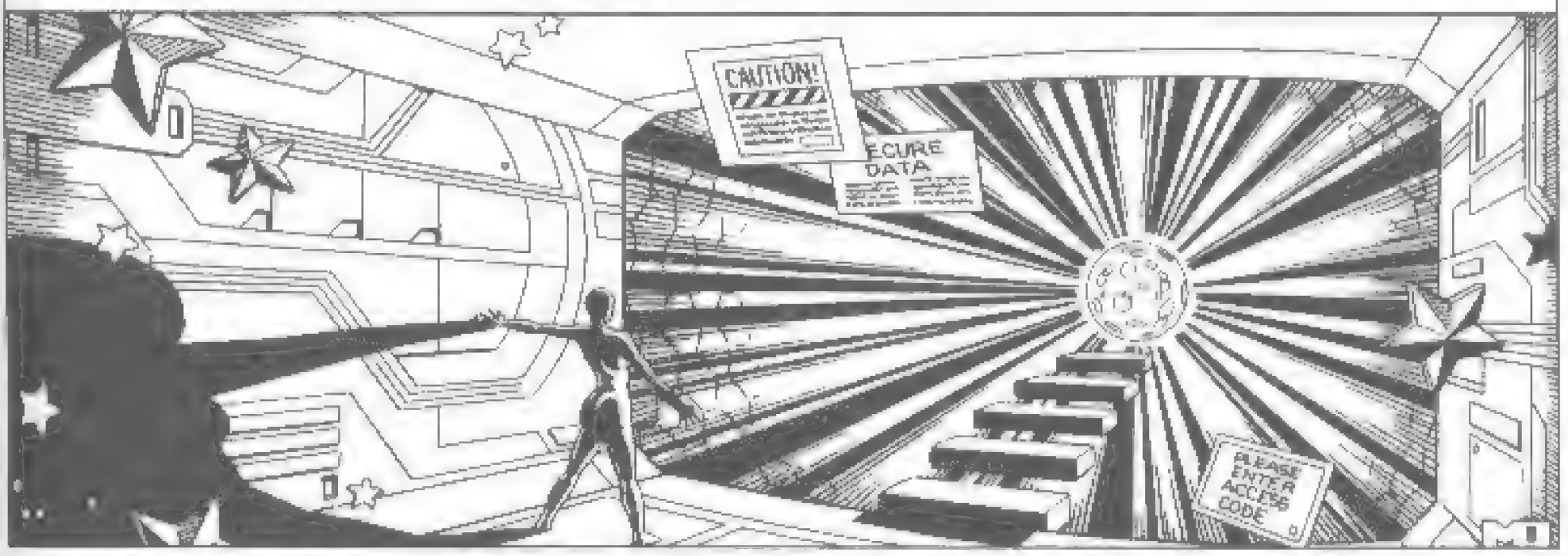
NORTH AMERICAN RTG SYSTEM RATINGS

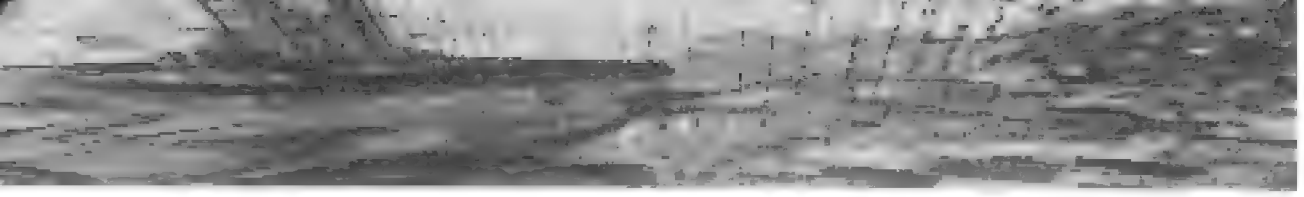
RTG	Security	Access	Control	Index	Files	Slave
Aztlan	Orange-3	8	8	6	7	7
California						
Free State	Green-4	6	8	6	6	7
Caribbean League						
Bermuda	Green-2	6	6	6	6	6
Cuba	Orange-3	8	8	7	8	7
Grenada	Orange-4	8	8	8	8	8
Jamaica	Green-3	6	7	6	6	6
South Florida	Green-2	6	7	6	6	6
Virgin Islands	Green-2	6	7	6	6	6
CAS	Green-3	6	8	7	8	8
NAN						
Algonkian-Manitou	Green-4	7	8	7	6	6
Athabascan	Green-3	6	8	6	6	6
Pueblo	Orange-4	8	8	8	8	8
Salish-Sidhe	Green-3	6	8	7	6	6
Sioux	Orange-3	7	8	8	7	7
Trans-Polar Aleut	Green-2	6	6	6	6	6
Ute	Orange-3	7	8	7	7	7
Québec	Green-2	6	8	8	7	7
Tir Tairngire	Orange-5	7	8	8	7	7
Tsimshian	Orange-5	8	8	8	8	8
UCAS	Green-4	6	8	6	6	6

OVERSEAS RTG SYSTEM RATINGS

RTG	Security	Access	Control	Index	Files	Slave
Germany						
Greater Frankfurt	Green-4	6	8	6	6	6
AG Chemie*	Red-5	10	10	9	9	9
Frankfurt	Orange-3	6	8	6	7	7
Frankfurt Bank Assn.*	Red-5	10	10	8	9	9
Mainz/Wiesbaden	Green-4	6	8	6	7	7
Mannheim/Ludwigshafen	Green-4	6	8	6	7	7
Northern Germany	Green-3	6	8	6	7	7
Arkoblock 1–4	Red-4*	8	10	8	8	8
Berlin	Orange-3	6	8	7	6	6
Bremen	Green-5	6	8	6	7	7
Hamburg	Green-4	6	8	6	7	7
Hannover	Orange-5	6	8	7	8	8
Rügen	Orange-5	8	10	9	9	9
Rhine-Ruhr	Green-4	6	8	6	6	6
Cologne	Green-3	6	8	6	6	6
Dortmund	Green-2	6	8	6	6	6
Düsseldorf	Green-4	6	8	6	6	6
Essen	Green-4	6	8	6	6	6
Ruhrmetall	Orange-5*	8	9	8	9	10
Ruhr Uni.	Orange-4	6	8	6	7	7
Saeder-Krupp	Red-5*	8	10	9	10	10
Southern Germany	Green-4	6	8	6	6	6
Heidelberg	Green-3	6	8	6	6	6
Munich	Green-4	6	8	6	6	6
Nuremberg	Green-3	6	8	6	6	6
Stuttgart	Green-4	6	8	6	6	6
SOX	Red-4*	9	10	8	8	8
SOX-Öffnet	Green-3	6	8	6	6	6
Great Britain	Orange-5	7	8	6	7	7
Tir na nOg	Red-5	9	9	7	8	8

*Denotes an entry point to a PLTG (see below).





LOCAL TELECOMMUNICATIONS GRIDS (LTG)

When a decker first connects to the public grid at the start of a run, his deck loads his icon onto an LTG. LTG ratings, at least in North America, are usually equal to the System Ratings for the parent RTG. In countries like Germany, however, the System Ratings of LTGs and their parent RTGs may vary.

Optional Rule: Variable LTG Ratings

Gamemasters may vary an LTG's System Ratings to simulate the constant system-load fluctuations, rerouting, and alerts common to LTGs. At the gamemaster's discretion, fluctuations may affect specific locations in an LTG or the entire LTG and may last for a few hours or the length of an entire adventure.

To determine the ratings of a fluctuating LTG, roll 1D6. On a result of 1 or 2, reduce all the LTG's basic System Ratings by 1. On a 3 or 4, the basic ratings remain unchanged. On a result of 5 or 6, increase the LTG's System Ratings by 1.

The gamemaster may also implement specific changes in the System Ratings of an LTG to reflect specific events or to accommodate the background of an adventure.

PRIVATE LTGS

Private LTGs (PLTGs), as described on p. 169, **SR3**, actually represent independent, restricted global grids that are closed to the general public. Most large corporations and all megacorporations maintain at least one PLTG. Typically, most developed countries maintain several government PLTGs, which may extend to military or diplomatic sites outside the countries' borders.

PLTGs are governed by the laws of the corp or country that owns them. As a result, PLTG owners can install any anti-intrusion measures they desire. Because building a PLTG requires a considerable investment, most owners don't skimp on the IC.

PLTGs are stable systems and their System Ratings do not vary.

When assigning System Ratings to a custom-designed PLTG, the gamemaster should consider using Orange or Red security codes and Intrusion Difficulties of Easy, as described in **Intrusion Difficulty**, p. 31. System Ratings for several sample PLTGs appear in **Matrix Hot Spots**, p. 149.

Entry Points

Corporate PLTGs span the globe. An LTG code like NA/UCAS-NE-3617-EBMMHQ, referred to in the basic Shadowrun rules, actually identifies a single entry point on the EBM2 PLTG, a grid that connects corporate host computers all over the world.

PTLGs may support multiple entry points connecting them to different public grids. Saeder-Krupp's PLTG, for example, has an entry point on the Rhine-Ruhr RTG in Germany (D03-11), and a North American entry in New York (NA/UCAS-NE-4212-SKRUPP). Both have a System Rating of Red-5/8/10/9/10/10, because they are actually parts of the same system.

Deckers may gain access to a PLTG through any of its entry points, or by entering a host connected to the PLTG.

Regulations

Many countries strictly regulate the operation of PLTGs within their public grids, despite corporate pressure to deregulate all international PLTG access. In North America, the Pueblo and Ute Councils, the Sioux Nation, Tir Tairngire, and Aztlan all maintain anti-PLTG regulations. Overseas, PLTGs are regulated or forbidden in Tir na nog, Israel, Japan, the Confederated Azanian Nations (outside of the Trans-Swazi Federation), some of the other, stronger African states, and some of the single-vendor ministates that virtually belong to one of the megacorps.

The Pueblo, Sioux, and Israelis maintain tight control over all data traffic into and out of their countries as a matter of course and outlaw all PLTGs. The Utes prohibit PLTGs because they regard technological intrusions into their sovereignty as a threat to the old ways. The two Tirs are so paranoid about secrecy that their principal motive remains anybody's guess.

In general, PLTG regulations are politically motivated and inconsistent. For example, in countries where megacorps effectively own the government, these megacorps reserve the right to operate their own PLTGs while denying others the same right. Similarly, Japan allows Japanese-owned corporations PLTG access but denies it to foreign corps. And is anyone surprised to know that Aztechnology's PLTG is the only corporate PLTG that operates freely in Aztlan?

JACKPOINTS

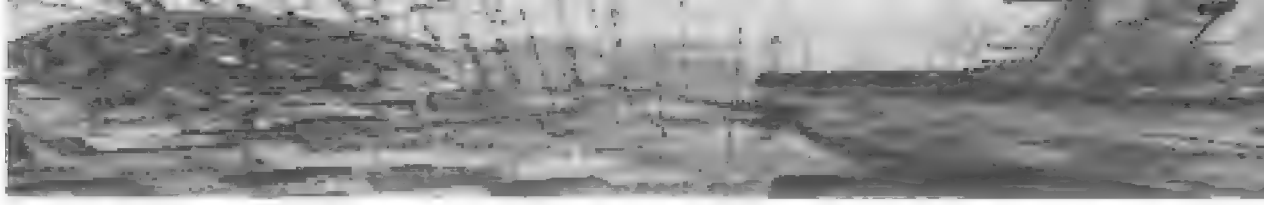
Jackpoints consist of the physical connections deckers use to access the Matrix. Each type of jackpoint has three values—Trace, Access, and Base Bandwidth.

The Trace Factor indicates the traceability of a jackpoint. The lower the Trace Factor, the more easily Trace IC (see p. 45) can locate the jackpoint. The Trace Factor applies for the decker's entire run.

The jackpoint's Access modifier applies to all the decker's Access Tests during the run.

The base bandwidth value represents the maximum bandwidth the jackpoint accepts without further reducing its Trace Factor (see **Cyberdecks**, p. 81, for a description of the optional bandwidth rules). If the decker's bandwidth exceeds the jackpoint's base bandwidth, use the following formula to calculate the bandwidth Trace modifier. First, divide the decker's bandwidth by the base bandwidth and round the result down. Multiply that figure by –1. The result is the bandwidth Trace modifier. For example, a decker with 78 Mp on a jackpoint with a Base Bandwidth of 20 has an additional Trace modifier of –3 (78 divided by 20 equals 3.9, rounded down to 3 and multiplied by –1). The bandwidth Trace modifier may change during the run as the I/O bandwidth is increased or reduced, but it may never drop below the modifier for the decker's icon bandwidth, because that value is fixed for the entire Matrix run.

Gamemasters may vary the base bandwidth of jackpoints available at specific locations. For example, jackpoints at a cheap hacker hotel that provides stolen trid connections might have base bandwidths of 10 Mp. Meanwhile, the optical trunks serving an office or condo complex might have base bandwidths of 40 or 50 Mp.



The following text describes the vital statistics of common jackpoints.

Legal Access

Trace Factor: –2
Access: –2
Base Bandwidth: 20

A legal-access jackpoint represents access from a legally registered tridphone. Of course, it doesn't have to be *your* tridphone, *omae*.

Illegal Access

Trace Factor: +0
Access: +0
Base Bandwidth: 20

An illegal-access jackpoint represents access from either an illegal tridphone connection (some unscrupulous soul has boosted service from the phone company) or a tap, an illegal junction box hooked directly into a fiber-optic trunk. The illegal-access jackpoint is the most common jackpoint used by deckers.

Satellite Uplink

Trace Factor: See p. 30
Access: +2
Base Bandwidth: 50

The satellite-uplink jackpoint is described in detail under **Satellite Links**, p. 30.

Workstation

Trace Factor: –4
Access: –4
Base Bandwidth: 50

Workstations consist of cyberterminals connected directly to a host. Naturally, the decker is not jacked into the wimped-out terminal that the company provides but is running his own deck over the same commline. Trace programs can spot these in a hot tick, but they're cheese to break into.

Remote Device

Trace Factor: +4
Access: +4
Base Bandwidth: 20

Remote devices provide the means for the classic, sneaky, back-door intrusion. The targeted host mounts grid defenses that don't quit, and big goons with bigger guns guard the office terminals. But the system runs a remote-controlled device—an automated factory, a security terminal, even a vending machine—that lets the decker slip his icon past all the gonzo IC and straight into the guts of the system.

Remote devices are a bit harder to trace than most jackpoints because most IC searches for commlines initially and does not start interrogating other input sources until it comes up empty on the SANs. However, a decker will have to sweat to defeat the remote device's Access codes because most systems are not set up to take orders from a soda machine.

Console Access

Trace Factor: –6
Access: See text
Base Bandwidth: Unlimited

A console can be the actual control panel on a mainframe, or a workstation logged on with console access. Console access is also called supervisor, super-user, or sysop access.

Trace IC can locate a console-access jackpoint very easily, but such jackpoints provide easy access to a decker. For deckers attempting to access a system via a console-access jackpoint, halve the opposing system's Access Rating and Security Value for all Access Tests. Additionally, the decker can use all the bandwidth he wants without lowering the jackpoint's Trace Factor. However, gaining console access requires a really wiz ground team of runners to get the decker into the machine room and keep him alive long enough to do the biz.

GRID SECURITY TALLIES

Switching LTGs within the same the same RTG does not affect the security tally against a decker. For example, if a decker logs on to UCAS-SEA-2206 and incurs a tally of 2, then logs on to the UCAS-SEA RTG central system and picks up another point to his tally, then finally accesses UCAS-SEA-4206 and picks up another 2 points, his Security Tally stands at 5 and stays at 5 for as long as he is logged on to the UCAS-SEA grids. However, the tally does not follow the decker if he logs on to another RTG.

PLTGs and Security Tallies

Because PLTGs maintain very active security routines, a security tally built up under a given RTG does remain in force if the decker logs on to a PLTG from the RTG. This occurs because PLTGs pick up security "flags" from RTGs when they acknowledge log-ons. This means that a decker who racks up a big tally working his way through the public grids may trigger IC as soon as he enters private dataspace.

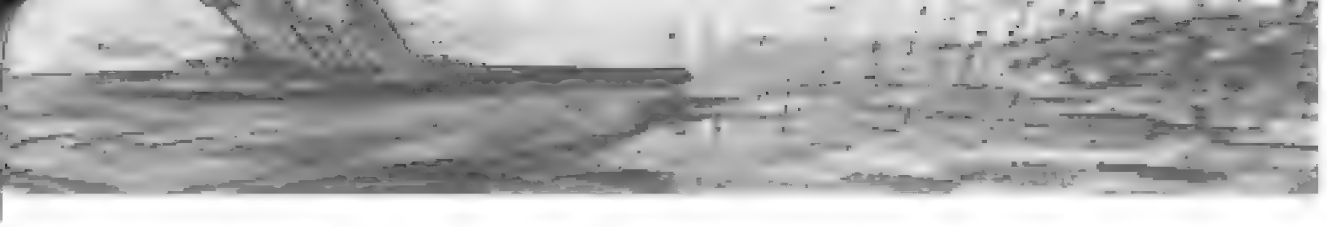
The decker in our example, with a Security Tally of 5, would retain that tally when he enters a PLTG from the RTG. If that tally is enough to trigger security responses in the PLTG, they go *off* as soon as he finishes the log-on. Whatever the immediate result, his Security Tally on the PLTG begins at 5, plus any points he incurs while logging on.

SYSTEM OPERATIONS ON GRIDS

In addition to the following System Operations, deckers can always perform a Graceful Logoff operation at any time. For an explanation of Graceful Logoffs and other System Operations, see **System Operations**, p. 108.

From a Jackpoint

Deckers jacking in via legal or illegal trid can only perform the Logon to LTG operation. Then they have to find the host/grid they want to invade, if they don't know its location. Deckers jacking in via a dedicated workstation, slave-controlled remote device, or console can only perform the Logon to Host operation and must log on to the host that controls the gizmo they are using for access.



On an LTG

Once logged on to an LTG, the decker can move to the parent RTG with a Logon to RTG operation or try to access any host connected to the LTG with a Logon to Host operation. If a PLTG is attached to the LTG the decker is on, he can use a Logon to LTG to try to break into it.

The decker can also attempt Redirect Datatrail and Retrain operations from an LTG.

When the decker enters a PLTG, remember that any security tally built up in previous tests on the RTG and its LTGs follows the character and can trigger immediate problems for the decker.

On an RTG

Once logged on to an RTG, the decker can either move to another RTG (i.e., make a "long-distance call" to get on to the Grid in another part of the world) by using a Logon to RTG operation or enter any LTG attached to the RTG with a Logon to LTG operation.

The character may also perform the following operations on an RTG: Locate Access Node, Make Comcall, Redirect Datatrail, Retrain, Tap Comcall.

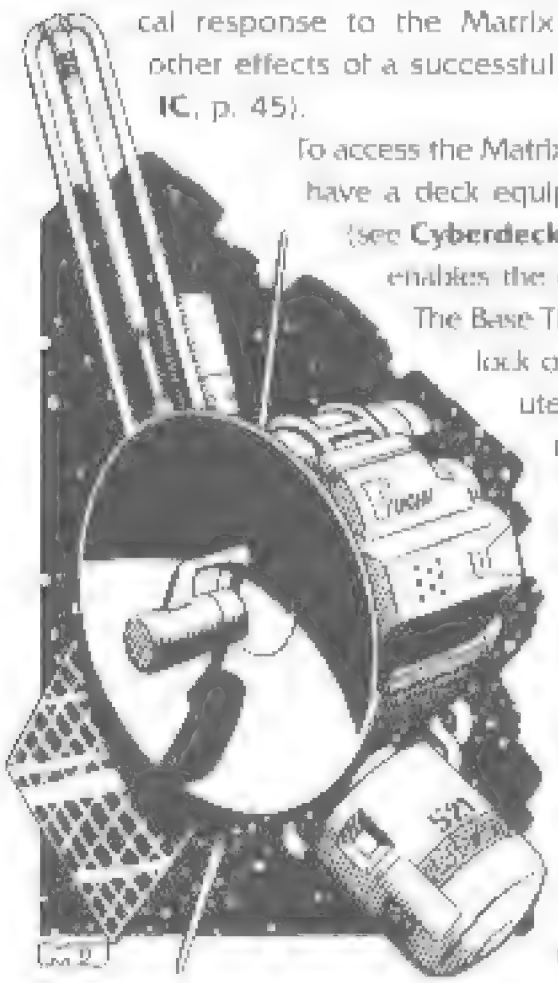
On a PLTG

A decker logged on to a PLTG may perform any System Operation available on public RTGs and LTGs.

SATELLITE LINKS

When a decker taps directly into a communications satellite to enter the Matrix, he trades higher Access target numbers for partial immunity to Trace IC. Signal lag over the satlink also reduces Reaction by –2.

While Trace IC can locate the satellite jackpoint, it cannot pinpoint the decker's physical location, making physical response to the Matrix intruston impossible. The other effects of a successful trace still apply (see **Trace IC**, p. 45).



To access the Matrix via a satellite, a decker must have a deck equipped with a satlink interface (see **Cyberdecks**, p. 81). The satlink software enables the decker to locate a commsat. The Base Time to isolate the satellite and lock onto its transponder is 3 minutes. To do so, the decker must make a successful Computer Test against a target number based on the conditions of the attempt, as shown on the Satlink Target Numbers Table.

Failure to achieve any successes means that the decker fails to locate the satellite or lock on to its transponder. As a rule of thumb, the gamemaster can allow the character to make another attempt after five minutes or so, and more frequently in dire situations.

SATLINK TARGET NUMBERS TABLE

Conditions	Target Number
Open country, clear view of horizon	2
Open country, some obstructions	3
Open country, mountains or heavy forest	6
Suburban	3
Light Urban	4
Downtown Urban	8
Bad weather (more than overcast)	-2

Decking the Satellite

For game purposes, satellites function as LTGs but are classified as Orange-Average or even Orange-Hard systems with no reduction in Subsystem Ratings. Rate military and private corporate comsats as Red-Hard.

Once the decker locates the satellite, he can perform a Logon to LTG operation to access it. From the satellite, a decker can perform a Logon to RTG operation to any RTG on earth. He can access most systems in near-earth orbit as well, if they use that particular satellite for communications. In case any suicidal deckers ask, no, Zurich-Orbital does not use satellite protocols this way, so this trick is not an effective back door into that most icy of Matrix domains.

Security tallies generated on a satellite carry over to the RTG that the decker accesses.

HOSTS

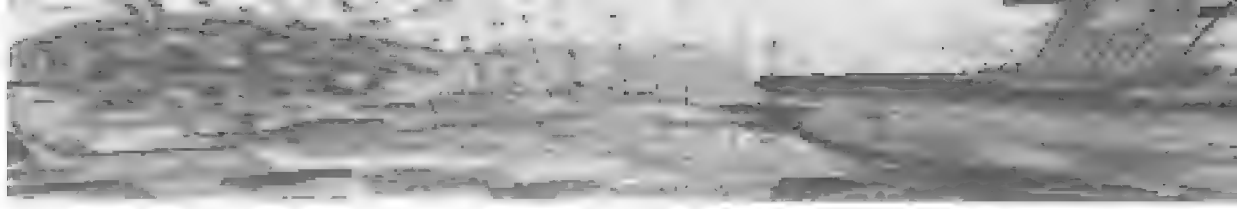
Host systems serve as the computer installations where the Sixth World processes all its information. Billions of nuyen and inestimable megapulses of data flow through these systems daily. Host systems act as the vaults where secrets are stashed—the technological wonders of hundreds of R&D departments, the hidden dirt of the gleaming corporate world, secret identities and true names.

SECURITY CODES

The security code of a host measures the level of security precautions the host maintains. Generally, the code reflects the sensitivity of the data on the host, but it may also simply reflect the degree of paranoia suffered by the host's owner.

Blue Hosts

Blue hosts include most public-service databases: newsfax distribution systems, public library databases, directories of listed commcodes—pretty much anything free, whether provided by a government, a corp, or a private individual. Small businesses too poor to secure their systems tend to have Blue hosts as well.



Every snot-nosed Matrix wannabe with a cheap deck and time on his hands targets Blue systems. As a result, these systems usually carry a fair share of Matrix graffiti: virus code that displays obscene "wit" when a user logs on, datastores fragmented by random vandalism, amateurish icons that simply sit in memory being obnoxious. The "protection" programs commonly imposed on Blue systems are a bit nastier. These smartframes will gut system files if the netpunks don't get their weekly "donation" from the system owner.

Green Hosts

Green hosts are average systems, but never make the mistake of thinking a Green host represents easy prey. They may be more patient with intruders than the Orange or Red systems, but they can load any IC the hotter hosts mount.

Green hosts include public databases that charge minimal user fees, open computer nets at colleges (though not the ones used by corp-funded research projects), and corporate and government computers that run the day-to-day office work.

Orange Hosts

Orange hosts pride themselves on being secure systems, if not wild-eyed killer hosts. Orange hosts store your standard "secret" data and carry out processing that is important but not absolutely essential to the host's operators. Orange systems include the typical factory controller and the networks used by middle management in a typical corporate office.

Red Hosts

Red hosts offer the most security that a system may legally carry. They contain "top secret" data, often the kind owners will kill to protect, and mission-critical process controls (life support, vital labs and factories, power grids, and the like). Anti-intrusion defenses tend to be lethal—deckers get no "warning shots" on Red systems.

INTRUSION DIFFICULTY

The System Ratings of a host—the Security Value and Subsystem Ratings—are based on a measurement called Intrusion Difficulty. Matrix 2.0 rates systems with Intrusion Difficulties of Easy, Average, or Hard. Generally, Intrusion Difficulty is based on the level of "user-friendliness" that the system must have to do its job, and the number of users who access the host on a typical day.

Easy Systems

Generally, Easy systems share their functions among many different users and offices. These systems handle high volumes of traffic and accommodate many demands on their computing power. As a result, these hosts can devote only meager resources to security. Typical Easy systems include highly centralized corporate computers, educational systems, and cheap systems installed by small businesses.

Average Systems

Generally, Average systems support smaller user-bases than Easy systems, and they handle more limited and secure transactions. Typical Average corporate systems serve a single office or division, often with a user-base limited to executives and their immediate staff. Prosperous small companies also use Average systems, as would R&D projects dealing with less-than-earth-shaking research.

Hard Systems

Hard systems handle the most secure data and restrict access to a favored few users. Typical Hard systems include financial transfer systems, major R&D facilities, private corporate executive networks, secure military systems, virtually all intelligence systems, and critical public systems like air traffic control or municipal power.

SYSTEM RATINGS

The gamemaster sets host System Ratings based on the host's Intrusion Difficulty. The gamemaster may use dice rolls or his discretion to create these ratings.

Random Generation

To set System Ratings randomly, the gamemaster simply rolls the dice indicated on the Random Host System-Rating Table. (1D3 equals 1D6 divided by 2.) The information on the table assumes that an "average" decker possesses utilities with a Rating of 4. As a result, using the table may produce System Ratings that present little challenge for deckers with significantly higher utility ratings. In such cases, gamemasters may wish to generate System Ratings using the Assigned Numbers method (see below).

RANDOM HOST SYSTEM-RATING TABLE

Intrusion Difficulty	Security Value	Subsystem Ratings
Easy	1D3 + 3	1D3 + 7
Average	1D3 + 6	2D3 + 9
Hard	2D3 + 6	1D6 + 12

The gamemaster is designing a host that holds key evidence of corporate double-dealing. He decides it is a computer serving a regional office of Aztechnology. It carries sensitive data, and AZT is notoriously paranoid about deckers, so he gives it a Security Code of Red. However, the system must serve a moderately large user base efficiently, so he determines that it is an Average system.

The gamemaster rolls 1D6 for the Security Value. The dice roll produces a 3, which the gamemaster divides by 2 and rounds up for a result of 2. That yields a final Security Value of 8 (6 + 2). Now he rolls five times for the Subsystem Ratings. On an Average host, the dice roll is 2D3 + 9. His rolls produce results of 11, 15, 13,13,12. The final System Ratings for the AZT host are:
Security: Red-8

Access: 11
Control: 15
Index: 13
Files: 13
Slave: 12
or Red-8/11/15/13/13/12.

Terrifying for a beginning decker with Computer-6 and a cheap deck. Cheese for a scarred veteran of the Matrix punching a Fairlight's console. Should give pause for thought to the 99 percent of deckers who fit somewhere in between.

Assigned Numbers

The gamemaster can simply assign values to the host's System Ratings as follows, enabling him to create challenging hosts based on a specific decker's resources.

Intrusion Difficulty	Security Value	Subsystem Ratings
Easy	4 to 6	8 to 10
Average	7 to 9	11 to 15
Hard	8 to 12	13 to 18

Regardless of how the gamemaster sets the System Ratings, however, he can always tweak a rating up or down to better match the abilities of the player characters. The gamemaster also should ensure that all ratings match the fictional systems they represent. A system in Fuchi's Chiba network, for example, should be a tough nut to crack, and its System Ratings should reflect that degree of difficulty. A player character lacking excellent skills and hot utilities should have less than no hope of defeating such a system. Use the following general guidelines for setting ratings.

A final Target Number of 3 or less is cheese. A typical starting player character with Computer 6 and a decent Detection Factor to keep the IC off his neck will defeat such ratings most of the time, especially if they are defended by a wimpy 4 or 5 points of security. An Average system will provide stiff opposition for a decker with these ratings. A Hard system will probably defeat such a decker unless he is very lucky.

Deckers with skill of 8 or more, Detection Factors of 8 or 9, and utilities in the 8-point or higher range find Hard systems challenging but defeatable.

Optional Rule: Varying Subsystem Ratings

Gamemasters may raise or lower individual Subsystem Ratings of hosts to give these systems distinct flavors. For example, if the gamemaster wants to make it difficult for a decker to access an Easy system but encourage a more innovative approach involving a meatworld raid on a corp site, he might increase the Access Rating by 2 for entry points on public grids and reduce the Access Rating by 1 for a dedicated workstation or remote device, altering the Access modifiers from those jackpoints as well.

Similarly, the gamemaster might vary the Files Ratings of a host. For example, he might decide that all of a system's public relations files, the advertising brochures of the information age, carry a Files Rating 2 points lower than the system's base Files Rating. At the same time, the system's personnel management files, including all e-mail and personal journals, schedules, and so on, have a Files Rating 2 points higher than the system's base Files Rating.

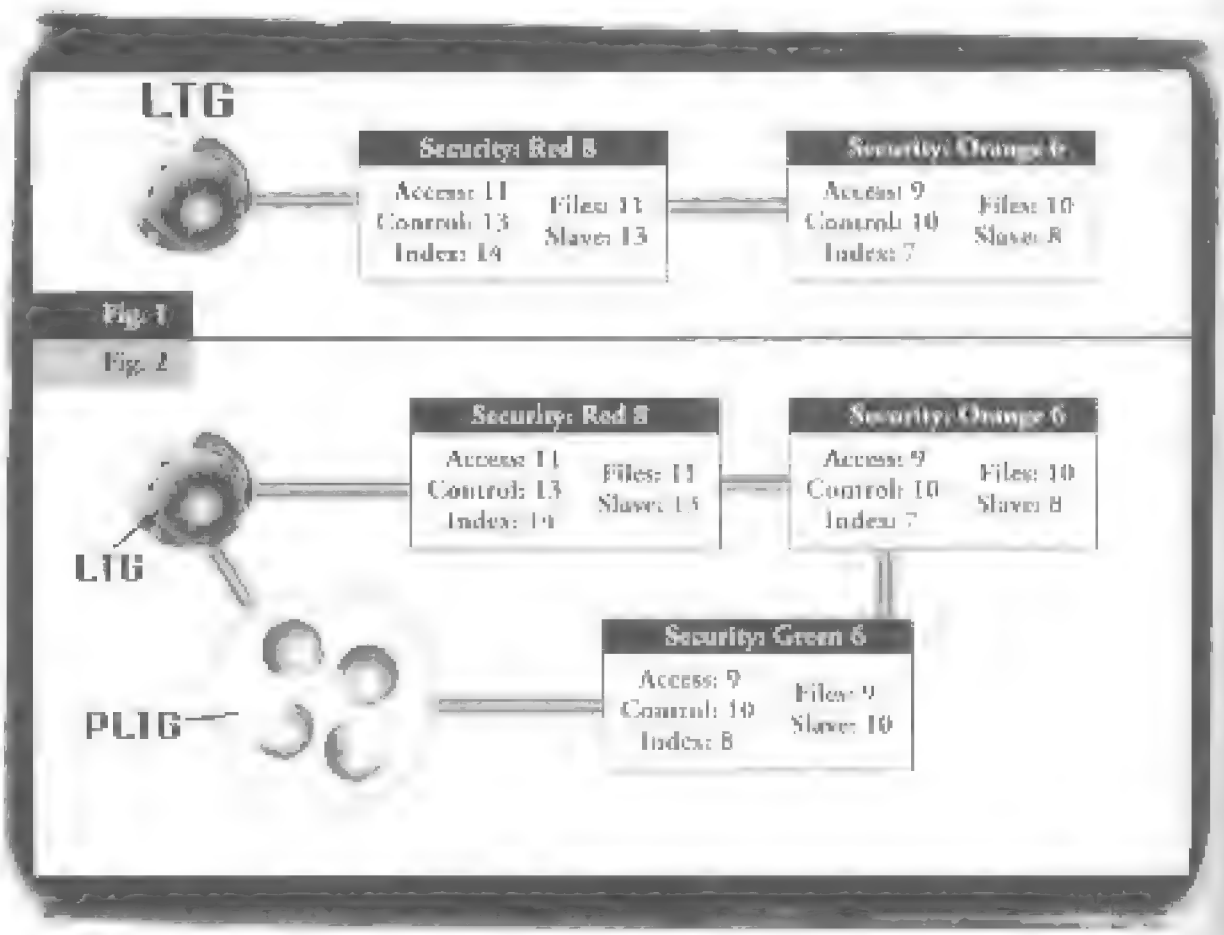
System Tricks

Though the **System Operations** section (p. 108) describes the majority of host system operations, the following system tricks appear here because they can be viewed as "meta-operations," operations that affect the entire environment in which deckers and programs operate. The "bouncer" host offers an excellent example of such a meta-operation.

Bouncers

A bouncer host operates at an apparently low level of security but upgrades its Security Rating when it detects intrusion. For example, in its normal state a host may carry Orange or Green security. When the security tally reaches a specific point, usually after a fairly low number of tests, the mainframe actually loads in new security code and changes into a Red system with a higher Security Value.

If a decker logs on and runs an Analyze Host diagnostic operation, he will determine that he is entering a Green-4 host. Null sweat. He goes about his business until he triggers the bouncer. On the next turn, the system turns into a Red-8 host!



A bouncer takes 1 turn to make the upgrade. Whenever a decker triggers a bouncer, the gamemaster makes a Sensor (Security Value) Test, using the system's original Security Value. If the test results in any successes, the decker notices that the Security Rating is rising but must perform an Analyze Host operation to determine the new security code and value. The decker makes the test for this operation against the new Security Rating. If he fails to achieve any successes, the decker must perform another Analyze Host operation to find out why the computer has suddenly become so hostile. (See p. 111 for a description of the Analyze Host operation).

Highly secure areas of a specific host also may function as bouncers automatically, regardless of the security tally. For example, any operations on top-secret R&D datafiles might trigger a bouncer as soon as the host achieves a single success against a user. Even legitimate users opening these files may trigger higher security, just as an authorized bank employee opening a vault may trigger alarm klaxons and flashing lights.

Chokepoints

A chokepoint host exists solely to block unauthorized access to more sensitive computers. Traditionally, these hosts serve systems that are linked together so that users must pass through the chokepoint host to reach other hosts in the system.

Chokepoints generally protect sensitive hosts that must maintain constant Matrix access, such as financial management, air-traffic control, and power-grid management systems. The chokepoint usually has higher System Ratings than the host it protects, especially chokepoints guarding high-volume systems that normally offer Easy or Average Intrusion Difficulties.

The "killing jar" architecture found at the Denver datahaven represents one of the ultimate developments of chokepoint design (see p. 79, **Denver, The City of Shadows**). Rumor claims that the engineers there have dedicated a massively parallel ultramini to run the murderous IC in this design. Certainly it takes something at least that powerful to make the chokepoint as impassable as it seems.

Chokepoints can be stoppers on Matrix runs. A decker can try to bull through with brute force and hot programs, but this approach can prove a real gamble. The smartest approach is to locate alternate access paths to the target host that allow the decker to bypass the chokepoint host altogether.

Figure 1 in the Chokepoint Designs diagram shows a simple chokepoint design. The only way into the target host is through the Red host that connects the system to the LTG. Unless the decker bypasses the grid altogether and gains access to a workstation, slave remote, or similar jackpoint, he must tackle the Red-8 monster to get to the goodies on the Orange-6 host. Actually, such arrangements are rare on all but the most sensitive systems, because few operators can afford to tie up so many resources behind impassable security. Figure 2 shows a much more common configuration. Here, a nasty chokepoint blocks public access to the target host, but a decker can sidestep it via the corporate PLTG and a cheesy office LAN with a dedicated connection to the target.

Trap Doors

Trap doors offer "secret passages" from one host to another or to a PLTG. A host may appear to be isolated from the Matrix but have a comm port that is not accessible via its Access routines. Instead, some other subsystem controls passage to the target host.

For example, the Shiseki-gumo, a yakuza clan, hides its main computer behind a trap door on an innocuous Green-5 business computer belonging to Tri-Marine Exports. An Analyze Subsystem operation that examines the Access subsystem finds nothing unusual. Analyzing the Slave subsystem, however, reveals a dedicated port connected directly to another host.

The decker must perform a Graceful Logoff using the Subsystem Rating that conceals the trap door before he can Logon to Host to reach the host to which it leads. For example, on the Tri-Marine computer, the decker must make a successful Slave Test to get out through the trap door, then an Access Test to get into the Shiseki computer on the "other side." (See pp. 114, 116, for descriptions of Graceful Logoff and Logon to Host operations.)

Trap doors are particularly nasty when combined with chokepoints. To defeat such arrangements, the decker must bit-flip around in the very hostile environment of the chokepoint host, looking for the trap door that leads to the goodies.

Vanishing SANs

Vanishing SANs (System Access Nodes) represent entry points on an LTG or PLTG active only at specific times. At all other times, these SANs are closed and do not even appear in the RTG. They simply do not exist except when active. A decker performing a Locate Access Node operation when a vanishing SAN is open will find it. A second later, when the SAN closes, he will not. Very sensitive systems that must maintain realtime Matrix access to perform their functions may use all sorts of variations on this trick.

To log on to a system via a vanishing SAN, the decker must wait until the SAN becomes active and then succeed in a Logon to Host operation before it disappears again. If the operation succeeds, the decker has jammed open the SAN and set up spoof code that makes the host think its access node is safely offline again. If the operation fails before the SAN disappears, the system dumps the decker.

Typically, vanishing SANs stay open for no more than 10 to 20 seconds. For a typical vanishing SAN, the gamemaster rolls 1D6 + 1. The result is the number of turns the decker may try to log on.

Vanishing SANs include timed, teleporting, and triggered SANs.

Timed SANs are the simplest form of vanishing SANs. A timed SAN always uses the same LTG code and opens at set times each day. The Biological Library computer at MIT&M, for example, opens a connection to the LTG every day at 0600, 1200, and 1800 Eastern time to share e-mail, abstracts, and other traffic with the rest of the Matrix. A decker who wants to access this host from the grid must be waiting at one of those

times and then must sneak past the Access protection to get online before the transfers end.

Teleporting SANs generally belong only to major megacorps and governments with the wealth and clout to broker the necessary contracts with the RTG vendors. Each time a teleporting SAN disappears, it cancels its account on the RTG and subscribes to an entirely different RTG for its next appearance. This trick is analogous to having an unlisted comm number that changes your comm code, AND your area code, AND your country code, after every call.

Saeder-Krupp Prime division operates a wandering node that uses this trick. It can open Matrix access at 09:00:01 GMT on a German LTG, close at 09:00:07 and re-open at 09:01:01 with an LTG address under a UCAS RTG. Now you see it, now you—hey, where'th'frag did it go?!

Teleporting SANs switch their network addresses based on secret algorithms. Systems that provide access to SANs also store this algorithm, so that they know where to reach the SAN at any given time. Say Saeder-Krupp Aerospace needs to deliver a report to S-K Prime's teleporting SAN. It "looks at its watch" (i.e., the computer takes the clock tick), feeds it into a "black box" routine, and voila—a comm code and an access time comes out (seems Prime is on a Japanese LTG this morning). Connecting to that code at that time will allow the call to go through.

A teleporting SAN intended for outgoing connections only needs no external algorithm at all. The host can even negotiate new node addresses based on an entirely random process, picking RTGs out of the thin, virtual air of the Matrix.

To jump a teleporting SAN, a decker must possess the SAN's algorithm code so that he can predict the SAN's whereabouts. Alternatively, the decker can run a frame with an Event Trigger (see p. 107) that performs periodic Search RTG operations to monitor selected RTGs and notifies him when the new SAN appears in the lookup tables. For one-time runs, an employer or some other asset may provide a decker with the coordinates of a vanishing SAN.

The slang term "Port-a-SANs" applied to teleporting SANs is a regrettable indication of the maturity level of certain deckers, and the present author assumes no responsibility for it.

Triggered SANs are access nodes that open only in response to specific actions elsewhere in the Matrix. For example, the R&D host for Yamatetsu's gene-tech center only opens when a Slave operation on the Yamatetsu-North America HQ processor triggers a satellite signal (non-data bandwidth, useless for decking). The Slave operation, in turn, is triggered by hits on a periodic database search by the HQ machine that finds an update in one of the scientific exchange conversations that the program monitors for the wizkids in research. The Slave node itself lives on a secured system hiding behind a glacier, but the publications monitor runs on a box hooked into the moderately secure Neurobionics Forum network.

Couple this scheme with teleporting SAN architecture, and predicting where or when the R&D SAN will open becomes impossible. To do so, a decker would have to know how the triggers work, locate the next address for the SAN, then compromise the event triggers somehow (plant a false hit in the Neurobionics Forum that Yamatetsu's program will want to deliver, or get into the Yamatetsu HQ computer and trigger the signal to the R&D host, or invade the satellite link and send a false signal that the R&D host accepts as legit) and *then* be ready to jump the access node when it opens.

For a variation on triggered SAN architecture, see the wildly paranoid design of the uplinks to Zurich-Orbital, described on p. 94, **Corporate Shadowfiles.**

Virtual Machines

A virtual machine (VM) is a simulated host run as a subprogram by the real host, sometimes called the native host. System operations on the VM do not affect the actual host operations. For example, editing a file on a VM does not alter the actual storage in the native host's datastores. Furthermore, VMs can filter any sensitive data out of downloaded files automatically, before the data even gets into the VM processing area. The decker cannot even recognize that he is getting watered-down information unless he monitors the file as it downloads and knows, based on some other source of knowledge, that the data is incomplete or false. Decryption simply does not work at all.

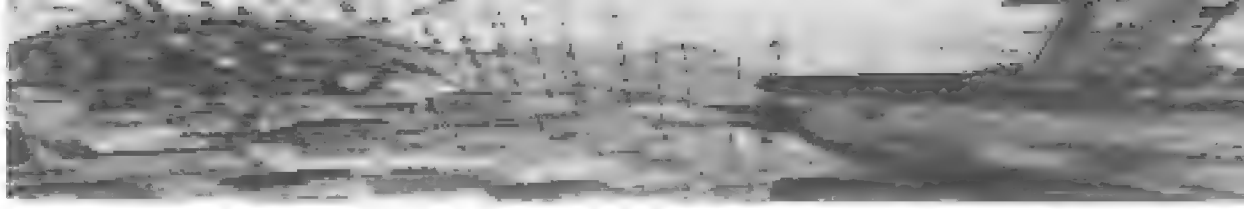
Nothing a decker does to a VM affects the native computer. Even crashing or throttling the VM host simply alters the way the VM program runs—it will not do a thing to the native host. Frames, virus code, logic bombs—all can trash the VM as hard as they want but they will not damage a single pulse of data on the real host.

On the other hand (you knew there was another hand, didn't you?), everything that happens on a VM seems quite real to a decker—drek, it is real as far as virtual reality is concerned. Crashing a VM will dump a decker, even though the crash will not affect the native host. System Tests made on a VM run up security tallies as usual, and IC on a VM feels every bit as nasty as IC on a native host. Program code running in a VM affects a decker's persona the same as it does anywhere else—usually painfully.

A VM's maximum System Ratings are 2 points lower than the native host's, though the security code can be the same. So a VM running on an Orange-7 host could have a maximum Security Rating of Orange-5. Similarly, if the native machine has Access-10, the maximum rating on the VM would be Access-8.

A VM can be designed with lower ratings than these maximums, of course. Some hosts use this technique to camouflage themselves from deckers. The intruder finds a cheesy Green-4 system, containing nothing but promotional simsense brochures and the general manager's laundry list, and (after marveling at how much it costs to launder real wool these days), departs for more lucrative pastures—without realizing he was on the executive accounting Red-8 host.

Rumor has it that some of the more powerful systems nest VM architectures. The decker logs on to a Green-4 system, detects that it is a VM and busts out into a Red-6 host. He loots it down to the last pulse and logs off, never realizing that the Red-6 host was actually a VM run on a Red-8 native host. All that paydata is fool's gold, carefully sanitized before it ever fed into the second layer of deception.



A decker can detect a VM by deliberately testing for it with an Analyze Host operation. Breaking out of a VM into the native host requires a Control Test against the native host's Security Rating (see **System Ratings**, p. 16). The number of successes the decker scores over the native host's opposing test determines whether or not he achieves his goal. One success enables a decker to break out of a Blue VM. Two successes are required for a Green VM, three successes for an Orange and four successes to break out of a Red VM.

Because VMs are designed to confine user icons, a decker's security tally increases if he achieves successes on the Control Test but fails to break out of the VM. In this situation, increase the security tally by the number of successes by which the decker fell short. For example, a decker must achieve 3 successes to break out of an Orange VM. If the decker only scores 2 successes on his Control Test, raise his security tally 1 point. Each success the native host scored in the opposing test also is added to the security tally.

If and when a decker does break out of a VM into the native host, he retains his current security tally. If he had a Security Tally of 8 before he broke out and picked up 2 more points during his Control Test, he would have a Security Tally of 10 on the native host.

PASSCODES

Passcodes consist of access codes that guarantee automatic success when attempting certain tasks or manipulating specific files on a computer. Any activity not authorized by the passcode requires System Tests and can jeopardize the passcode.

For example, a passcode would enable a legitimate user to log on to his office host without performing a Logon to Host operation. He reads a file he has access to—no need for a Files Test, thanks to his passcode. But the passcode does him no good when he snoops into office e-mail and tries to read another user's mail (he does not have authorized access to the e-mail). He has perform Locate File and Download Data operations, same as a nasty old decker would, because he is working outside the authorizations of his passcode.

The guy's in trouble if anyone catches him and checks the system logs, because his terminal identifies all his activities, legal and illegal. On large, busy systems, minor violations like this often go undetected. They always show up within 2D6 days on systems rated Orange or Red, depending on how often the system security manager conducts audits.

Passcode Formats

Simple passcodes consist of sets of symbols. The user enters the symbol set when he wants to log on to the host and if he does it right, the host grants him access. Because the Matrix is a virtual reality, passcode symbols can include letters, words, tunes, even specific movements. If a decker learns someone's passcode, he can use it to log on to the host anywhere the code is valid.

Linked passcodes work in combination with the MPCP signature of the user's terminal. Because a decker's persona will not have the same signature, the passcode alone will not work for him. However, a decker can use a deception utility to mimic the legitimate MPCP signature. In these situations, a stolen linked passcode provides a decker with a –2 bonus for his Logon to Host operation.

Passkeys are passcodes locked to a specific chip installed on the user's terminal. To use a stolen passkey, a decker must also steal or duplicate the key-chip. Software solutions such as the deception utility won't cut it. A passkey without the right chip on the terminal or deck simply does not work. If the decker gets the algorithm for the chip that goes with a given passkey, the "program" that he must write and cook into a chip is 10 Mp. See **Cyberdecks**, p. 81, and **Programs**, p. 94, for details of this process.

If a decker successfully uses a passcode to log on to a system, he receives all the authorizations the passcode's legitimate user possesses. The same applies to fake passcodes that the decker plants on the host for later use.

So why can't deckers just salt the Matrix with fake passcodes and then use them forever? Couple of reasons. First, all but the most lax system managers insist on changing passcodes at least once every three months. High-security systems change them weekly. The most paranoid operators use algorithms that combine the date and time with a pseudo-random number generator to produce a new passcode every time a user needs to log on. In this arrangement, the users carry pocket units that tell them what their passcode will be at any given time. If they lose the pocket unit, they have to request a new one that will use a different passcode generation scheme. Organizations that use this system never install passcode generators.

Second, the system immediately deactivates passcodes whenever someone logged on with one performs any actions that trigger an active alert in the host. As long as the user only performs operations for which he has authorization, this won't happen. Unfortunately, few passcodes authorize the wide range of operations most deckers want to perform in a system.

Finally, many megacorp systems require a user to present his passkey code and submit to an identification check, such as a retinal scan, before granting the user access.

Passcode Authorization

These rules cannot cover all the options for how organizations can control passcodes, though most systems provide fairly specific authorizations. For example, a system might authorize a user with passcode MPCP 93847752-ADN-34626-ZZ to log on between 0800-1800 PST from (a list of jackpoint locations) and provide read/write access to (a list of files) and read-only access to (a list of files).

When introducing specific passcodes into an adventure, the gamemaster must determine the authorizations the passcode provides. Use the following general levels of passcode authorizations as guidelines.

User Passcodes provide the lowest levels of authorization and impose precise restrictions on what the user can do, as in

the previous example. They are of little use to a decker once he has logged on to the host.

Most legitimate users carry user passcodes, with authorizations tailored precisely to their job requirements.

Superuser Passcodes consist of high-level passcodes that usually give the user the right to read all but the most sensitive files on a host or to access all but the most important Slave systems. This passcode does not authorize the user to perform operations involving Control, except for simple things like writing programs.

Scramble IC, data bombs, and other defenses protect the system against superusers, though files or remote systems specifically authorized by the passcode do not block the user. In other words, stealing the superuser passcode for a finance manager would probably get a decker into the company's secret financial database, but a passcode for an engineering specialist probably would not.

Organizations issue superuser passcodes to senior technical staff, line managers, and other mid-level suits.

Supervisor passcodes authorize almost any activity except destruction of important data or actions that damage the host or put it out of action. As with superuser passcodes, not all supervisor passcodes authorize access to everything. But until the host reaches an active alert, supervisor passcodes provide users with –2 modifiers to all System Tests target numbers, even for actions not authorized by the passcode.

Only technical managers, senior managers in general, and data security specialists receive the rarely issued supervisor passcodes. Corp deckers receive the most powerful supervisor passcodes, for use when they are in pursuit of intruders on the hosts they guard.

HOST NETWORKS

A host network consists of a series of computers linked in a tiered-access configuration. The first-tier host, called the switcher or hub, guards the pathway to all the second-tier machines. The host network offers a convenient design for the gamemaster setting up a situation involving many hosts, all basically identical, serving different functions in an organization. For example, the Accounting, Sales, Engineering, and Maintenance groups at a given corporate office are all separate hosts. Only the amount of paydata and the specific datafiles or slave systems onboard differentiate these hosts. The security sheaf for each host looks the same (see **Matrix Hot Spots**, p. 149).

Arranging these hosts into a host network can provide ease of play and a logical design. In a typical two-tier network, a first-tier host—probably a high-security chokepoint system—connects the network to the grid. Any number of second-tier hosts live "behind" the first-tier machine. To travel from the hub to a second-tier system, a decker must perform an Analyze Subsystem operation on the Access subsystem of the first-tier host (unless the designers are wildly paranoid and hid the connection to the second-tier hosts in a trap door on a different subsystem) to find the connections, then perform a Logon to Host to the second-tier host.

These operations include the equivalent of a Graceful Logoff on the first-tier hub, so if the system is running Trace IC, add the IC rating to the decker's target number for the logon to the new host—the Trace will be registering strong objections to the hub's switching software about this departure, after all. However, if the decker successfully logs on to the second-tier host, the hub loses his datatrail, and any Trace running against him in the hub crashes.

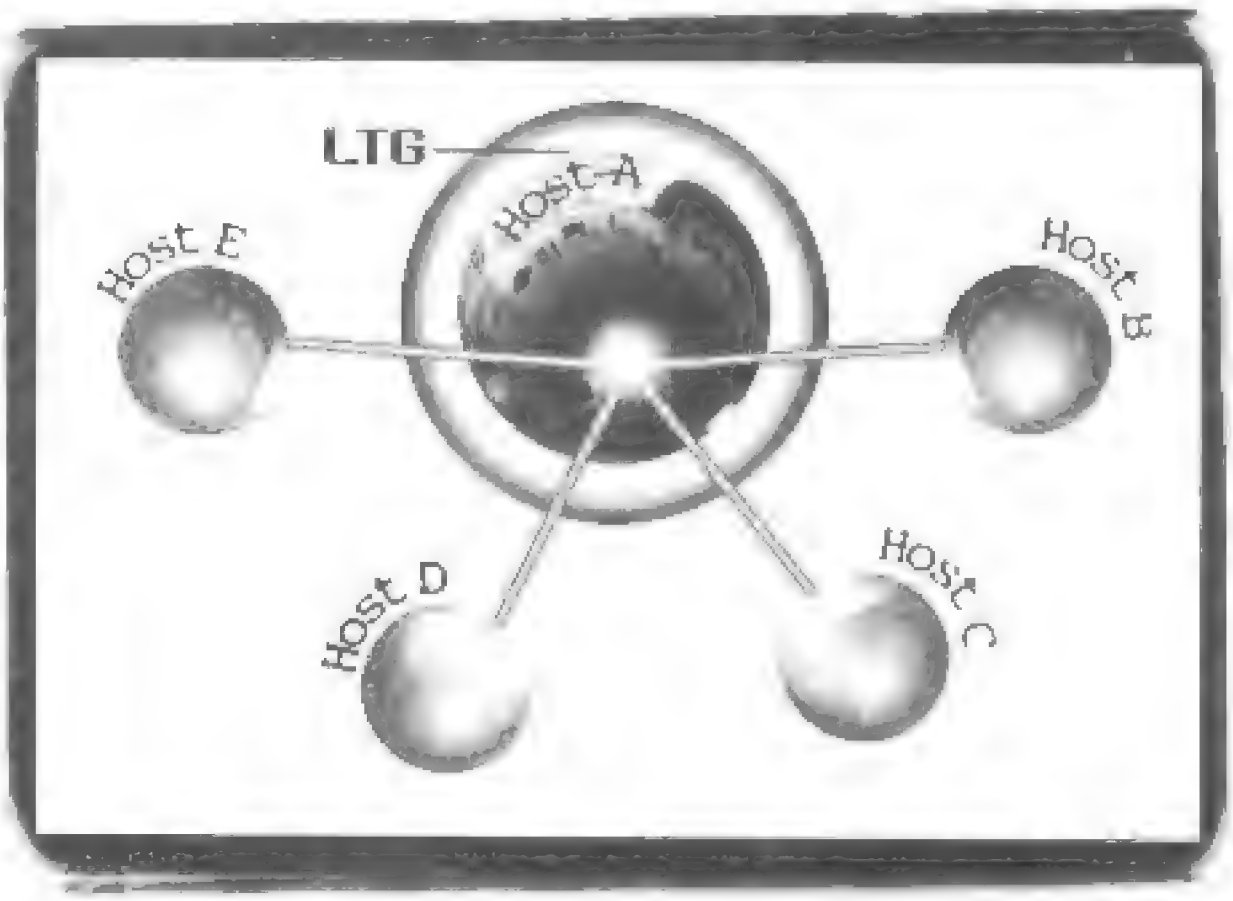
To pass from any single host in a network to another, the decker must perform a Logon to Host operation from the second-tier machine back onto the hub, and then another Logon to Host to get to the next computer.

Network Files and Nodes

A first-tier hub rarely contains data of any value. Because the hub functions as the "traffic cop" for the network, however, it must "know" what functions its second-tier machines handles. As a result, deckers on a hub can perform operations such as Locate File or Locate Slave for the entire host network. These operations can identify which second-tier host contains a specific datafile or controls a certain remote device. Once the decker logs on to the correct second-tier host, another Locate File or Locate Slave operation provides the address of the icon he wants.

UV HOSTS

Ultraviolet hosts are extremely rare. They possess higher System Ratings than the toughest Red hosts, and their processing power is so great that it creates cyberspace of a qualitatively different order of reality. On a UV host, a decker cannot dif-



ferentiate between the virtual experience of cyberspace and physical reality. This makes UV hosts an entirely different creation from any other form of host.

Only a hot deck (see **Cyberdecks**, p. 81) can even log on to a UV host. Cool decks and tortoises cannot interact with the core processing area of a UV host. They can access so-called buffer systems, which translate data flows into and out of the main computational space, but nothing more. Icons representing cool decks or terminals cannot cross the interface between the buffer systems and the UV core.

On a UV host, the decker's persona changes—often drastically. It becomes a character with Strength and Body Ratings equal to its Bod Rating, Quickness equal to the persona's Evasion Rating, and Mental Attributes equal to the decker's own. Utility programs become physical tools, weapons, armor, and the like, or have no effect at all, depending on the nature of those utilities and the exact defenses located within the UV host. The decker uses his real skills in a UV host but may always substitute half his Computer skill instead.

But here's the most fun part of UV hosts. Any damage to the decker's persona is damage to the decker himself. If his persona experiences Mental damage, his own Mental Condition Monitor reflects it. If his persona suffers apparent physical damage, it is Physical damage. Jacking out of a UV host exposes the decker to 12D Stun damage from dump shock. If he's already taken a beating, that could overflow his Mental Condition Monitor and prove fatal.

Apart from these guidelines, anything goes. Consider the physical laws of UV cyberspace infinitely flexible. The gamemaster may, and must, define them to suit the particular run. Not that runs to UV space are that common. Getting there is dangerous, logging on puts the decker at profound risk, and there aren't that many UV systems out there. At the current time (2056), UV hosts remain nothing more than rumors among the decking community. Right?

Where Are the UV Hosts?

No one is entirely sure which matrices harbor UV hosts. The Denver Nexus definitely has UV qualities in some of its memory spaces. Rumor says the UCAS government maintains a site of UV cyberspace, but thousands of rumors put it in as many different locations. Other reports claim that the governments of Tir na nog and, startlingly, the Zulu Nation maintain UV hosts. The main processing cores of supercomplexes such as the Zurich-O and the Renraku Arcology may be Ultraviolet as well.

What's more, certain evidence suggests that a sufficiently powerful processing complex can develop Ultraviolet levels of virtual reality without the knowledge of its operators. The UV area of the core processing space may come and go, depending on the amount of available computer power on the system. This, of course, raises the alarming possibility that a decker might find himself in what he fondly believed to be a humble Red-12 system that transforms suddenly into a UV environment. Gamemasters might consider hitting deckers caught in such a radical and disorientating transformation with some equivalent of dump shock.

One theory contends that UV cyberspace cannot exist without an AI maintaining it. However, no verifiable data supports the existence of AIs, and so the origin of spontaneous UV cyberspace environments remains a matter of speculation.

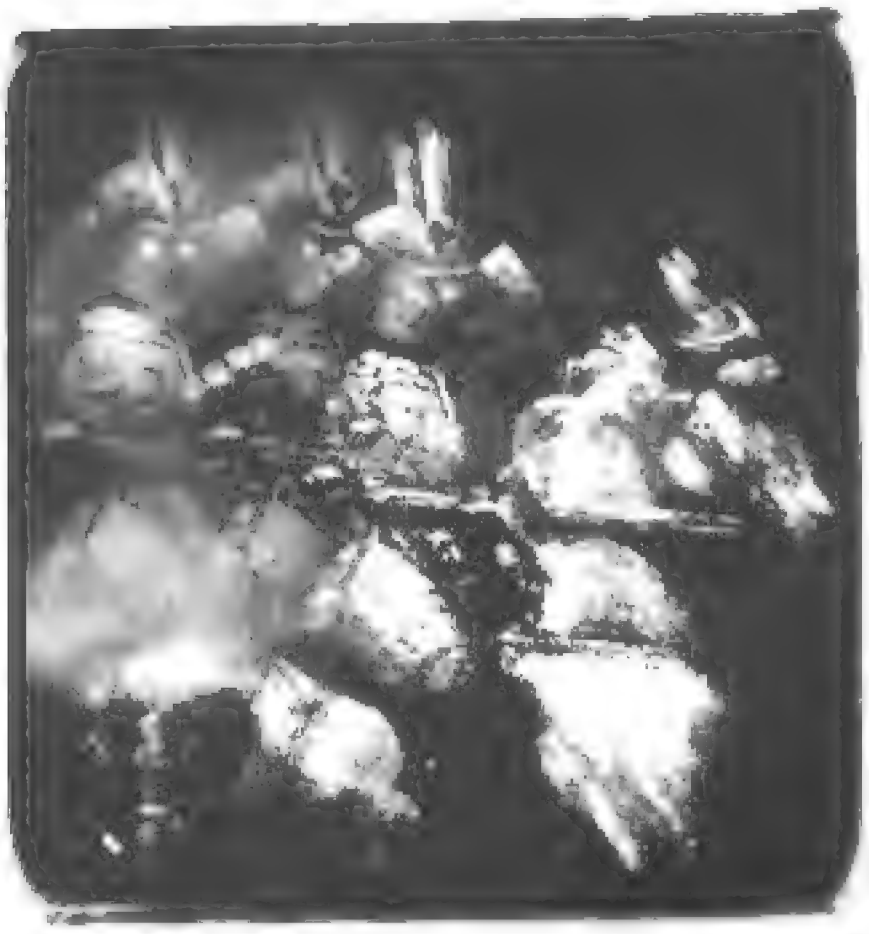
INTRUSION COUNTERMEASURES

"Faster, meaner, smarter—God, I hate the technology curve."

-fastJack, decker

"Isn't it a sign that you're going senile when you keep repeating yourself?"

-Unknown spotty techno-nerd



IC stands for intrusion countermeasures. (For all you Matrix virgins, it's pronounced "ice.") Some IC just impedes the decker, maybe tries to get a network ID on him. Other programs are designed to crash his icon off the Matrix. Still others go after his deck. Finally, there's black IC—which flat out tries to kill him.

IC is a major functional element of most host systems, which were covered in the previous section. However, any explanation of IC inevitably involves system operations and cybercombat. In-depth coverage of these subjects appears in the sections titled **Programs** (p. 94), **System Operations** (p. 108) and **Cybercombat** (p. 119).

INTRUSION COUNTERMEASURES

PROACTIVE VS. REACTIVE

IC is either proactive or reactive. Proactive IC attacks the decker in cybercombat once it is alerted to his presence (see **Cybercombat**, p. 119). Proactive IC acts like a hostile NPC. It makes initiative rolls during combat, maneuvers for advantage, and uses its weapons and other tricks.

Reactive IC, on the other hand, just "sits there." It may activate when the security tally reaches a specific threshold, decker actions may trigger it, or it may reside in a specific location or resource of the host, such as a file, slave remote, or even an entire subsystem. In the latter case, the IC becomes active when a decker accesses the protected location or resource. Once a decker triggers reactive IC, the IC affects the decker's operations until the decker destroys or deceives it, or otherwise convinces it to go away. Reactive IC rarely possesses initiative.

Trace IC offers an exception to the proactive/reactive rule. Trace IC uses initiative when trying to lock on to a decker's comm connection and begin the actual trace process. At all other times it acts as reactive IC, running happily in the background once it identifies the decker's datatrail.

LOCATING IC

Deckers don't always know when they trigger IC. Before a decker can attack IC or take other measures to neutralize it, a decker must "locate" the IC.

Obviously, a decker can easily locate proactive IC as soon as it attacks him. Once located, the IC remains "visible" unless it maneuvers to escape the decker (see **Combat Maneuvers**, p. 121).

Reactive IC is more insidious, because it does not betray its presence to the decker by any actions. Whenever a decker triggers reactive IC, the gamemaster secretly makes a Sensor Test against a target number equal to the IC's rating. If the test results in 1 success, the gamemaster informs the decker that his actions triggered IC. On 2 successes, the gamemaster tells the decker the type of IC triggered. On 3 or more successes, the gamemaster reveals the IC's rating and location. This Sensor Test is made only once, when the IC becomes active.

If a decker suspects the presence of active IC, he can use the Locate IC operation to check out that suspicion.

CRASHING IC

Whenever a decker "kills" or crashes IC in cybercombat, add the rating of the crashed IC to the decker's security tally. The rationale for this is that crashing IC is like opening up on a perimeter guard with full autocannon fire—the action destroys the guard but alerts his colleagues that company's coming. However, deckers may use various methods to more quietly crash or neutralize IC.

First, deckers may use the stealth option with attack programs (see **Programs**, p. 94). This reduces the number of points added to the security tally for the IC's destruction. For example, crashing a Probe-6 with an attack program normally adds 6 points to a decker's security tally. Attack with the Stealth-3 option, however, would reduce the points to 3. Stealth programs rated at 6 or higher hide the "dying scream" of IC altogether.

If the gamemaster chooses to not use the Utility Options optional rule, he simply may increase a decker's security tally by half the rating of any IC the decker destroys (round fractions up). The Utility Options rule makes life significantly less dangerous for the decker (as does the use of the stealth option in particular), but it may also make life significantly less challenging and interesting to drek-hot deckers with meganuyen cyberdecks and utilities. The gamemaster may also decide that this "half-rating" rule applies only to certain systems. For example, it might apply to Blue, Green and Orange systems but not to Red systems where the IC can be expected to be especially vicious and the system more ready to shift to a higher alert status.

SUPPRESSING IC

A decker also can avoid the penalty for crashing IC by suppressing it when he destroys it. However, suppressing IC lowers a decker's Detection Factor. Reduce a decker's Detection Factor by 1 for each IC program he suppresses. This reduction remains in effect as long as the decker remains in the system, unless he releases the suppressed IC.

Deckers must declare their intention to suppress IC as soon as they crash it. Deckers may "unsuppress" or release IC at any time. For each IC program the decker releases, he regains 1 point to his Detection Factor. His security tally, however, increases by the appropriate amount for each released IC program.

IC RATINGS

Each IC program has its own rating. This rating measures the damage the IC does or acts as a target number for tests the decker makes to avoid its effects.

In cybercombat, an IC program makes its Attack Tests using its host's Security Value as a "skill", to determine the number of dice it rolls. In other words, the host computer attacks the decker and uses the IC as a weapon.

The host/grid's Security Value also indicates the number of dice rolled to make Damage Resistance Tests for the IC program.

WHITE IC

White IC affects only the decker's online icon. It attacks the icon's ratings but does not affect the cyberdeck's permanent ratings or utilities. The worst that white IC can do is dump a decker or scramble data he is trying to read or write. Note, however, that a decker operating a hot deck may suffer some slight physical damage from simsense overload if he's dumped by white IC (see **Cybercombat**, p. 119).

Matrix 2.0 eliminates access and barrier IC. The new rules for System Ratings replace the functions performed by these types of IC.

CRIPPLERS

Cripplers are proactive white IC programs that each attack one of the decker's icon's attributes. Cripplers come in four types: acid, binder, jammer, or marker programs. Acid cripplers attack an icon's Bod Rating. Binder cripplers attack an icon's Evasion Rating. Jammer cripplers attack the Sensor Rating, and marker cripplers attack the Masking Rating.

Whenever a crippler program attacks an icon, the gamemaster makes an Attack Test for the host and tallies the successes (see **Cybercombat**, p. 119, for details on Attack Tests). At the same time, the decker makes an opposed test for the affected icon attribute against a target number equal to the crippler IC's rating. If the decker achieves a greater or equal number of successes, the IC does no damage. Reduce the affected icon attribute by 1 point for every 2 net successes the IC scores. Yes, that means 1 net success for the IC does no damage. Two successes do 1 point of damage, four successes do 2 points, and so on.

Neither Armor nor Hardening (see p. 86) protect against cripplers.

Crippler IC cannot reduce an icon attribute below 1.

Selena is on an Orange-6 system when she's attacked by Acid-4 crippler IC. The gamemaster makes an Attack Test for the IC and achieves 4 successes.

Selena's icon has a Bod Rating 6, so she rolls 6 dice when she makes her Bod (4) Test to resist the IC. Selena scores 2 successes—2 fewer successes than the acid IC. As a result, Selena's Bod Rating drops to 5.

KILLER

Killer IC is proactive IC that causes damage to icons in cyber combat. All killer IC has a Damage Code and its Power is equal to its IC rating. The Damage Level of killer IC is based on the host's security code. Killer IC on Blue or Green systems does Medium damage; killer IC on Orange and Red systems does Serious damage. For example, Killer-6 IC on an Orange host would do 6S damage. This damage rises a stage for every 2 successes achieved on the host's Attack Test, just like damage in standard combat.

If an attack from killer IC fills the Condition Monitor of a decker, the decker is dumped. Armor utility programs reduce damage from killer IC.

(Note that killer IC is classified as gray IC in **SRII**. However, it does not cause permanent damage to a cyberdeck's permanent ratings or utilities, so it is classified as white IC in Matrix 2.0 rules.)

DATA BOMB

A data bomb is reactive IC that acts as a booby trap attached to a specific datafile or remote device under the slave subsystem. Once set, the data bomb remains in place, waiting and ready to explode if a decker attempts to access whatever it is protecting; the data bomb does not rely on the security tally for its cue.

Deckers can find a data bomb by performing an Analyze Icon operation. The decker must make a successful System Test against the controlling subsystem to defuse it. The defuse utility augments this test. For example, if the bomb is on a file, the decker must make a Computer (Files Rating – Defuse Rating) Test to disarm it. If the bomb is on the security cameras at a corporate site, however, the decker would make a Computer (Slave Rating – Defuse Rating) Test.

Data bombs remain primed if the decker fails this test, unless he rolls all 1's. Normally, a decker can try to defuse a data bomb as many times as necessary, though, as with any System Test, each time the decker tries he may increase the security tally. Successfully defusing the data bomb does not count as crashing it, so do not add the bomb's rating to the security tally. If the data bomb is successfully defused, the decker need not suppress it.

If the decker fails to defuse a data bomb and then makes a successful System Test to open the datafile, read or write the I/O device or slave system, or otherwise succeeds in a test to access the booby-trapped subsystem, the data bomb explodes. A test that fails does not set it off. If a thief cannot bust the maglock on a safe, then he can't open it to trigger the bomb inside. Same idea applies here.

When a data bomb explodes, it automatically hits the person doing (IC rating)M damage which the icon resists normally. Armor utilities reduce the Power of the damage as usual. The "explosion" also adds the IC's rating to the security tally. The decker can avoid increasing the security tally by spending a point of his Detection Factor to suppress the IC.

Scaramouche ghosts up to a file full of, he hopes, paydata. If the file is the one he wants, it is likely protected somehow, so Scaramouche runs an Analyze Icon op on it. Yup, tiggers. Scrambled AND with a data bomb attached.

Scaramouche makes a Files Test because the bomb is on a file. Scaramouche has invaded a Green-5 host with Files-11, and the data bomb is rated 6. Scaramouche risks a few seconds to swap Defuse-5 into active memory and upload it. This lets him roll against a Target Number of 11 (Files Rating) – 5 (Defuse Utility Rating), for a total of 6. He scores 1 success, but the Security Test scores 2. The gamemaster smirks and tells him it ain't good enough. The data bomb is not defused.

Sweating a bit, Scaramouche rolls again, getting 2 successes. But the host scores 3, so the data bomb is still active. By now Scaramouche figures he's been doing well on his tests, so these repeated failures mean the host is scoring lots of successes and jacking up the security tally in a real nasty fashion.

Scaramouche decides to drop subtlety and rips open the datafile. Since he has a Browse-8 program, he passes the test handily, and so the bomb goes off in his virtual face.

Scaramouche takes a 6M hit. He has Armor-4, so he rolls Bod to resist the damage against a Target Number of 2, and stages down the damage to L. He decides to use a point of Detection Factor to suppress the IC to keep the security tally from going up another 6 points.

PROBE

Probe IC is reactive IC that conducts additional interrogations of data packets and program requests for computer resources. Probe IC helps detect any operations performed by unauthorized programs.

For a probe-equipped system, the gamemaster makes a Probe Test against a decker's Detection Factor every time the decker makes a System Test. Add any successes from the Probe Test to the decker's security tally.

SCRAMBLE

Scramble IC is reactive IC used to protect elements of a host's Access, Files, or Slave subsystems. Scramble IC can be programmed to protect a specific component of a subsystem or the entire subsystem. For example, scramble IC can protect an individual data file, a datastore, or all the Files functions on a host—including faxprinter output and dedicated terminals. Similarly, scramble IC on an Access subsystem can oppose logons from specific entry points, such as public grids and dedicated workstations, or all logons. On a Slave subsystem, scramble IC can defend specific remote devices or all devices connected to the subsystem.

Scramble IC comes in two varieties: exploding and poison. Exploding IC programs are linked to data bombs: If a decker decrypts or crashes exploding IC before defusing the bomb—boom! Poison IC programs destroy the data under their care if they detect intruders. Generally, organizations use poison IC only on extremely sensitive data which they have backed up off the Matrix. If the decker tries to decrypt poison IC and fails, the gamemaster makes a Poison Test against a target number equal to the decker's Computer skill. If the test fails, the decker has managed to suppress the poison IC's destruct code. If the test succeeds, the data is destroyed. Poison IC reacts the same way on each action of a cybercombat attack against it.

Deckers may use specific system operations to defeat scramble IC, all of which can be augmented by the decryption utility program (see **System Operations**, p. 108). Decrypting scramble IC does not add to the decker's security tally. Deckers can use attack programs to crash scramble IC, but doing so will increase the decker's security tally unless he suppresses the scramble IC.

TAR BABY

Tar baby is reactive IC that attempts to crash deckers' utility programs, specifically, operational utilities used in System Tests and any program a decker executes for a specific purpose. Tar baby IC does not attack completely passive utilities such as armor and sleaze programs.

Whenever a decker uses one of the trigger utilities, the gamemaster makes an opposed test between the two programs. Make the Tar Baby Test against a target number equal to the utility program's rating. Make the Utility Test against a target number equal to the tar baby IC's rating.

If the tar baby wins the opposed test, it crashes both itself *and* the utility program. Tar baby IC does not increase the decker's security tally when it crashes this way. The decker has to load a fresh copy of the utility program with a Swap Memory operation.

If the utility wins the opposed test, it remains safe and the gamemaster makes a secret Sensor Test to determine if the decker notices the tar baby IC (see **Locating IC**, p. 40).

Tar baby IC can be placed in a construct, party IC, or used with trap IC. In these cases, only utilities used against the construct, party, or trap IC are vulnerable. However, the Tar Baby Test modifies its target number by –2. Once the tar baby IC crashes, it is out of that construct—it doesn't reappear. Of course, the construct could contain multiple tar baby programs.

Note that tar baby IC is classified as white IC under Matrix 2.0 rules, because it does not permanently affect the utility programs it attacks.

Selena is on a run when she performs a system operation using Analyze-6. The utility triggers a Tar Baby-8 program that makes a grab at the utility. The gamemaster makes a Tar Baby (6) Test for the IC and an Analyze (8) Test for the analyze program. The Tar Baby Test achieves more net successes, and so both the IC and the utility crash.

GRAY IC

Gray IC programs attack a decker's cyberdeck and utilities directly. Any damage caused by a gray IC attack *permanently* affects the deck's ratings. Damaged chips and other components must be replaced to restore the deck's original ratings.

BLASTER

Blaster IC is proactive IC that attacks in cybercombat in the same manner as killer IC (see **Killer**, p. 41). Armor reduces damage from blaster attacks. However, blaster IC may permanently damage a decker's cyberdeck MPCP if it crashes his icon. If blaster IC dumps a decker, make a Blaster Test against a target number equal to the deck's MPCP Rating. Hardening increases the target number but armor does not. Reduce the MPCP Rating by 1 point for every 2 successes on the Blaster Test. Note that the decker may need to crank down his persona programs if his deck takes damage, because their total ratings may not exceed the deck's MPCP Rating multiplied by 3 (see **Cyberdecks**, p. 84).

It's not Selena's day. The program that blew her off the Matrix wasn't just killer as she'd hoped—it was a Blaster-6 program.

Selena's deck has MPCP-6 and Hardening-2, so the gamemaster makes a Blaster (8) Test. The test produces two successes, so Selena's MPCP Rating is permanently reduced to 5. If she goes on a run before replacing it, she'll have to adjust her persona programs to make sure their total ratings don't exceed 15.

RIPPERS

Ripper IC is a gray version of crippler IC. These proactive IC attack in the same manner (see **Cripplers**, p. 41), but whenever a ripper program damages an icon, make a Ripper Test against a target number equal to the deck's MPCP Rating. Hardening increases the target number. Reduce the rating of the deck's persona chip by 1 for each success on the test. Replacing the persona chip is the only way to restore this damage.

Four different types of ripper IC exist: acid-rip, bind-rip, jam-rip, and mark-rip. Acid-rip, also known as "bodstripper," "sizzler," or "peeler," attacks the deck's Bod Rating. Bind-rip, also known as "gluefoot," "mummy," or "flypaper," attacks the Evasion Rating. Jam-rip, also known as "blinder," "gouger," or "stick," attacks the Sensor Rating. Mark-rip, also called "screamer," "paint," or "tag," attacks the Masking Rating.

SPARKY

The proactive IC called sparky IC attacks in the same manner as blaster IC (see **Blaster**). However, if sparky IC crashes the persona, it causes an overload in the deck's power supply that feeds random jolts of electricity to the MPCP and the decker's brain. Results can range from a little impromptu electroshock therapy to a killing jolt. This is dark gray IC indeed—bordering on black—but because it is not designed to *deliberately* cause physical trauma, it is technically considered non-lethal.

Whenever sparky IC crashes a persona, make a Sparky Test against a target number equal to the deck's MPCP Rating + 2. Hardening increases the target number. Reduce the MPCP Rating by 1 point for every 2 successes of the Sparky Test. A sparky attack also causes (IC Rating)M damage to the decker. Stage the Damage up one level for every 2 successes on the Sparky Test. The decker resists this damage as he would any other. Hardening reduces the Power of the damage.

HeadCrash gets trashed off the nets by a Sparky-8 program. The Sparky Test yields 2 successes. That melts 1 point off the MPCP right away. It also raises the Damage Level to HeadCrash from 6M to 8S. Head's meatbod has a Body Rating 4 and his deck has Hardening-1. He rolls a Damage Resistance Test: 4 dice (his Body) against a target number of 5 (Sparky Rating of 6 – 1 for Hardening). His test produces 1 success, which does not stage down the damage. Can you say ZAP?!

TAR PIT

The reactive IC known as tar pit IC operates and attacks in the same manner as tar baby IC (see **Tar Baby**, p. 42). However, if tar pit IC trashes a utility online, it also injects the deck with viral code that corrupts *all* copies of the program in the deck's active and storage memories. Unless the decker has a backup copy of the utility stashed in offline memory, he's lost it for good. And even if he has a backup, he can't get at it for the rest of the run.

When tar pit IC trashes a program, make a Tar Pit Test against a target number equal to the deck's MPCP Rating. Hardening increases the target number. If the test produces no successes, the viral code is defeated and the tar pit IC has the same effect as the tar baby program, so the decker can reload his utility with a Swap Memory operation. If the Tar Pit Test produces any successes, however, the IC corrupts all copies of the program stored on the deck. The decker cannot get the utility back until he jacks out and reloads the utility from a source outside his deck (from a storage chip, most likely).

WORMS

Worms are reactive virus programs used to booby trap subsystems. Any System Test against a subsystem infected with worm IC prompts the worm to infect the MPCP of a decker's cyberdeck.

Deckers can detect worm IC programs by performing Analyze Subsystem operations. However, if a worm inhabits the subsystem, it tries to infect the decker when he analyzes it.

Deckers can destroy worms by performing Disinfect operations or by cybercombat. However, if an attempt to destroy a worm fails, the worm can infect the deck's MPCP. Worms have no IC Rating as such, so destroying one by either means does not affect the security tally.

To determine whether a worm successfully infects a deck's MPCP, make a test using the Security Value of the host against a target number equal to the MPCP Rating of the deck. On 1 success, the worm has invaded the MPCP. If the deck has Hardening, this test must result in a number of successes greater than the deck's Hardening to infect the MPCP.

Once a worm infects an MPCP, it cannot be erased. The decker has to cook a whole new MPCP chip. A worm infection cannot be detected unless a decker actively tests for it, a task requiring Computer skill (or an appropriate Hardware or B/R skill) and a Base Time of 10 hours. The decker may run the test periodically, as often as caution—or paranoia—dictates, or if he experiences problems that suggest the presence of a worm.

Worm IC v1.0 was developed as a Matrix weapon by Lone Star's GridSec programmers. More recent worm programs—dataworm and deathworm—have increased dramatically the dangers presented by worm IC.

Dataworms

Dataworms log information about a decker's runs and report it to their owners. Each time a dataworm-infected deck logs onto a grid, roll 1D6. On a result of 1, the dataworm tries to send a report chock full of incriminating evidence to some specified delivery address. At the same time, make a Sensor (8) Test for the decker. If the test fails, he doesn't even know the system has a dataworm. If the test succeeds, the decker notices the dataworm report and may engage it in cybercombat to destroy it before it gets away. In cybercombat, dataworm reports always act as standard Icons with 3D6 Initiative and an effective Evasion Rating of 8. They possess no offensive capabilities, but will maneuver to Evade Detection (see **Cybercombat**, p. 119, for a complete treatment of these concepts).

The effects of dataworm reports depend on the events in the adventure. If the decker gets arrested, the reports serve as admissible evidence against him, even if he was not arrested for Matrix crimes. If the decker uses his deck in a detectable pattern, the dataworm will report it. This allows a gamemaster to reasonably give non-player characters the e-mail names and addresses the decker uses, the identities of people with whom he communicates, and the BBSs he logs on to—as long as he employed that specific data while using the infected deck.

Deathworms

A deathworm infection increases a deck's target numbers by 2 in cybercombat. This increase applies to all Attack and Resistance tests made by the decker. If the deck picks up multiple deathworm infections, each additional worm increases the target numbers by an additional +1.

Tapeworms

Tapeworms erase files downloaded onto a deck. To determine how much data the tapeworm deletes, roll 1D6 – 1 at the end of each run. Subtract the result from any Paydata Points the decker downloaded on the run. If the decker downloaded a specific datafile to obtain information, roll 1D6. On a result of 5 or 6, the tapeworm corrupts the needed information and renders it irretrievable.

Once a tapeworm infects a deck's MPCP, it continues to affect all the deck's downloads in this manner until the decker replaces the chip.

TRACE IC

Trace IC is a hybrid of white and gray IC programs. Basically, trace IC works in two distinct stages: the hunt cycle and the location cycle.

During the hunt cycle, trace IC tries to get a fix on the decker's datatrail. It does this by "attacking" the decker in cybercombat. The target number for these Attack Tests is the decker's Trace Factor (see below).

The location cycle is a fixed period of time, based on the number of successes the trace IC scores when it finally "hits" the decker.

The Matrix 1.0 functions of Trace & Dump and Trace & Burn are not available in Matrix 2.0, though their effects can be duplicated. Trace IC performs the functions of Matrix 1.0's Trace & Report program. Under Matrix 2.0, a successful Trace also enhances the effects of other IC programs.

TRACE FACTOR

The base Trace Factor is equal to the decker's current Evasion Rating minus the trace IC's rating. Add the rating of any camo utility the decker is running, as well as the number of grids—LTGs, RTGs, and PLTGs—where the decker has performed Redirect Datatrail operations during this run (see **System Operations**, p. 117). In addition, apply any trace modifiers for the decker's jackpoint (see **Jackpoints**, p. 28).

If using the optional bandwidth rule (see **Cyberdecks**, p. 90) apply any trace modifiers for the decker's current bandwidth. The formula, again, is actual bandwidth divided by base bandwidth, rounded down and multiplied by –1.

Vanessa has illegally tapped into the commlines in the basement of a low-security office building. She went to the trouble of getting into an office building because the business service lines there give her a Base Bandwidth of 50 Mp. Her total bandwidth at the moment is 165 Mp. That calls for –3 to the Trace Factor (165/50 = 3.3, round down to 3, 3 x –1 = –3).

Vanessa left Datatrail Redirects on the local LTG to hide her jackpoint and the host she is targeting. That's 2 Datatrail Redirects, for a +2 to the Trace Factor.

Vanessa's deck is running a Camo-4 utility and has an Evasion Rating of 9. The host is running a Trace-6 program. That leaves Vanessa with a Trace Factor of 4.

Evasion Rating – Trace Rating + Bandwidth modifier + number of Datatrail Redirects + Camo Rating
9 – 8 + (–3) + 2 + 4 = 4

HUNT CYCLE

During the hunt cycle, trace IC makes Attack Tests against the decker using Initiative and other rules for cybercombat. The decker's Trace Factor is the target number for these tests. The hunt cycle lasts until the trace IC achieves a successful test.

During the hunt cycle, the decker can attack the trace IC in cybercombat and try to crash it.

Relocate utility programs are not effective during the hunt cycle.

LOCATION CYCLE

The location cycle begins as soon as the trace IC makes a successful Attack Test against a decker. The IC immediately "disappears" and becomes reactive IC.

Divide 10 turns by the number of successes achieved in the trace IC's Attack Test. The result, rounded down, is the number of turns the trace IC needs to complete its cycle and locate the decker's jackpoint. During that time, the decker may attempt to locate the IC and neutralize it by spending a Complex Action to perform a Locate IC operation to locate trace IC. If the decker cannot do this in time, the IC identifies the decker's Matrix and meatworld locations and reveals them to the host's operators. (See **Trace Effects**, p. 46, for other consequences.)

For the purposes of measuring a trace IC location cycle, Combat Turns are considered completed once they reach Phase 0. If a decker can freeze or destroy the IC before Phase 0 of a Combat Turn, that turn is considered completed.

Crashing a trace IC program with combat code produces the standard penalty to the decker's security tally (see **Security Tally**, p. 19). Defeating trace IC with a relocate utility has no effect on the security tally.

Vanessa is on a Red-8 host when she is attacked by a trace program. The trace IC Attack Test produces 6 successes—ouch! Ten divided by 6 produces 1.7, rounded down to 1. If Vanessa can't take out the IC, it will trace her in only 1 Combat Turn!

The IC vanishes and the clock is ticking. Vanessa tries a Locate IC operation on her last action of the present turn and finds the program's address. She will try to beat it next turn.

DEFEATING TRACE IC

A decker can defeat a trace program three ways. During the program's hunt cycle, the decker can attack it in cybercombat and attempt to destroy it. During the location cycle, the decker can run for it or use a relocate utility.

Run for It

A Graceful Logoff operation enables a decker to get away and immediately stop the location cycle of a trace program. However, trace IC tries to prevent this operation, so increase the decker's target number for the operation by the IC's rating (see **System Operations**, p. 114, for details).

Simply jacking out of the system will not defeat trace IC, because jacking out leaves the comm links in the network open for a measurable period. First, the LTG has to verify carrier signal

loss. Then it gracefully dismantles the decker's datatrail, the same way a user-initiated Graceful Logoff does. Just because a decker jacks out doesn't mean his datatrail disappears in a big puff of bits. If a decker does jack out, roll 1D6 – 1 (minimum value is 1). The result is the number of turns the decker's datatrail remains intact. If the die roll result equals or exceeds the number of turns left in the trace program's location cycle, the IC will still locate the jackpoint.

Relocate It

To use a relocate utility to defeat a trace program, a decker must spend a Simple Action to make a Control Test (the relocate utility reduces the target number). The gamemaster makes an opposing Security Test for the host/grid. Any successes for the opposing Security Test are added to the decker's security tally.

If the decker's Control Test succeeds, he successfully "spoofs" the trace program. Its sampling algorithms are sent on a wild goose chase. However, unless the decker keeps that trace suppressed (see **Suppressing IC**, p. 40), the trace will pick up where it left off, so the gamemaster should note how many turns were left in the location cycle when the decker completed his Control Test.

If the decker chooses not to keep the trace program suppressed, he can use a relocate utility again any time during each turn. If he succeeds, the trace IC remains neutralized for that turn. If he fails, the trace program ticks one turn closer to finishing its task.

Defeating a trace program with a relocate utility does not count as crashing the IC, and so it does not add the penalty to the security tally created by destroying the IC with an attack utility.

Vanessa has only one Combat Turn to beat the trace program. On her first action, she uses the relocate utility. She has Computer-10 and is running Relocate-4. The IC is Trace-8.

Vanessa rolls 10 dice (Computer Skill) against a Target Number of 8 (IC Rating) –4 (Relocate Rating). The host opposes this with the usual test: Security Value (Detection Factor). Vanessa, rolling 10 dice against a Target Number of 4, scores 4 successes. The host scores 3. Vanessa successfully blocks the trace this turn, but the security tally goes up another 3 points.

Vanessa can either allocate a point of her Detection Factor to keep the trace IC frozen, or can try to use the relocate utility against it again next turn. If she fails to do either, the IC will finish tracing her jackpoint on Phase 0 of the Combat Turn.

TRACE EFFECTS

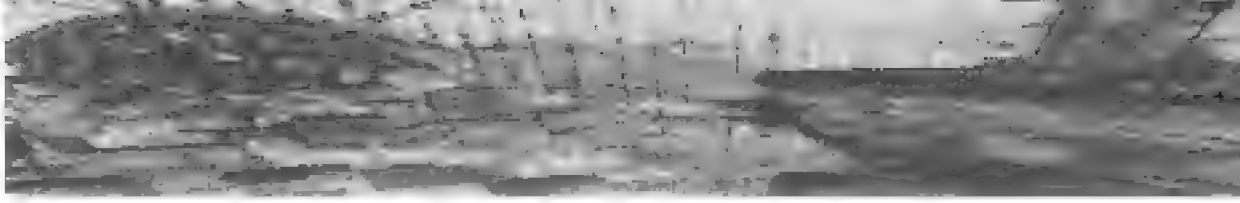
If a trace program completes its location cycle successfully, several things happen. First, the system records the jackpoint's network address and physical location in its security logs. That means that any security assets in the meatworld monitoring the invaded system can initiate physical measures against the decker's location (i.e., they send out the goons). More immediately dangerous to the decker are the IC-targeting and tally-acceleration bonuses that the host receives.

IC Targeting

The IC-targeting bonus reduces by 1 all target numbers for Attack Tests the system's proactive IC programs make against the decker in cybercombat.

Tally Acceleration

When the tally-acceleration bonus is in effect, add 1 to any increase to the decker's security tally. For example, if the host scores 2 successes in a System Test, add 3 to the security tally



SECURITY ASSET RESPONSE TIMES

Jackpoint Is In Security Rating:	Target Is: Public	Corporate	Megacorp	Government
B or higher	10 + 2D6	15 + 2D6	8 + 2D6	10 + 1D6
C	10 + 4D6	15 + 3D6	10 + 1D6	10 + 1D6
D	20 + 4D6	10 + 2D6	5 + 1D6	5 + 1D6
Z	NA	10 + 1D6	5 + 1D6	5 + 1D6
On Site	NA	2D6 ÷ 2	1D6 + 2	2D6 ÷ 2

Physical Measures

The physical measures triggered by a successful trace program really depend on a large number of variables. For example, say the trace IC has reported that the decker is tapped into a dataline in Redmond, at such-and-such a location. The speed of a physical response depends entirely on what resources the invaded system's owners have, jurisdictional concerns (see **Matrix Law**, p. 132), the location of the nearest useful assets, whether Lone Star or any other local law-enforcement agency has been called in, the standard Security Rating of the site, and so on.

The gamemaster may use his own discretion or dice rolls to determine the time it takes for security assets (i.e., goons) to reach the decker's jackpoint. If using dice rolls, consult the Security Asset Response Times table. The result of the dice roll is the response time in minutes. Keep in mind that all response times are simply suggested guidelines. "Government" entries in the table assume a UCAS setting—response times may be longer for less organized governments and shorter for efficient, paranoid ones. Cruel gamemasters can always determine that by some wretched misfortune the corp or government in question just happens to have a "strategic asset" (i.e., goon squad) near the scene that can reach the decker's location in, oh, 30 seconds or so.

"On site" jackpoints refer to entry points inside a manned location that belongs to the system's owner. For example, a decker jacking into a government host from inside a federal office building is on site.

TRAP TRACE

The functions of the Matrix 1.0 programs Trace & Dump or Trace & Burn can be reproduced by combining or "trapping" trace IC with a program that can blow the icon off the grid—such as killer IC—or gray IC programs that attack decks directly, such as blaster or sparky IC. Of course, trace also may be combined with black IC to create lethal trapped trace IC.

Trapping trace IC reduces the trace program's effectiveness. When linking trace and gray IC programs, add half the gray IC rating to the Trace Factor of any persona targeted by the trace IC. When linking trace and black IC programs, add the full black IC rating to any targeted decker's Trace Factor.

See **Trap IC**, p. 50, for more information.

TRACE ON A GRID

Trace triggered by a grid keeps working against the decker as long as he remains on any grid controlled by the same RTG. If he defeats the IC on an LTG, he must keep it suppressed or keep relocating it as long as he is on that LTG, its parent RTG, or any other LTG governed by that RTG (see **Suppressing IC**, p. 40, and **Relocate It**, p. 46, for details). On the other hand, the IC loses interest in tracking the decker once he has logged onto a host or another RTG or PLTG.

If the trace IC has been triggered by the RTG that governs the decker's jackpoint, or by an LTG attached to that RTG, then the IC can immediately dump the decker once it detects his jackpoint. In such circumstances a killer-type attack is not necessary, because the central switchers for the RTG accept control directives directly from the IC. This option is not available to a trace originating on other grids or hosts.

BLACK IC

Black IC is a form of proactive IC that samples the command transactions between the decker and his deck and then injects dangerous biofeedback responses into the deck's ASIST interface. These feedback responses raise the deck's simsense signal to the same levels as a BTL chip on overdose intensity. As a result, the signal may overload the decker's neural connections and in turn render him unconscious, trigger psychological disorders, brainwash him, or cause death from stroke, heart failure, respiratory paralysis, aneurysm, or neurotransmitter autotoxicity. And those are just a few of the possible effects.

"Cool" decks, which use weaker ASIST signals, do not produce lethal simsense signals in such situations, though deckers using cool decks remain vulnerable to stun damage and psychotropic IC. Only the most feeble, non-simsense terminals, the so-called tortoises, provide protection against these effects. (See **ICCM**, p. 86 in **Cyberdecks**, for more information.)

BLACK IC IN COMBAT

Black IC begins to subvert the ASIST interface in a decker's cyberdeck as soon as it scores a successful attack on the decker, even if the hit does no damage. Until the IC scores that first attack, jacking out of the Matrix is a Free Action.

After a black IC hit, the decker must spend a Complex Action and make a successful Willpower (Black IC Rating) Test to jack out. If the test succeeds, the decker may jack out, but the black IC makes one more cybercombat attack against him before the connection goes down. Black IC also makes an automatic attack if a companion at the jackpoint pulls the plug when the deck indicates black IC activity, or if the decker jacks out using an ICCM biofeedback monitor (see **Cyberdecks**, p. 81).

LETHAL BLACK IC

Lethal black IC fights like killer IC in cybercombat. However successful lethal black IC attacks cause damage to a decker and his icon. The Damage Code for the IC depends on the Security Code of the Host: (IC Rating) Moderate for Blue and Green systems, (IC Rating) Serious for Orange and Red ones. The Damage Code applies to damage to both the decker and his icon.

Raise the Damage Level for every 2 successes on the IC's Attack Test. Every time black IC hits a decker, the decker rolls two Resistance Tests. Hardening reduces the Power of the damage for these Resistance Tests. A Body Resistance Test, using his Body Attribute, enables the decker to resist damage to his person. The Hacking Pool may not be used for this test, though Karma Pool dice may be. The decker also makes a Resistance Test using his icon's Bod Rating to resist damage to the icon. The icon resists damage as it resists damage from killer IC (see **Killer**, p. 41), and armor protects the icon normally.

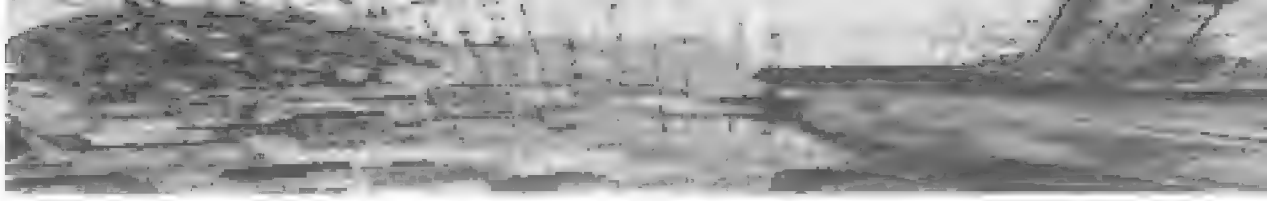
The decker's Matrix connection remains intact if the icon is killed before the decker dies or manages to jack out. In such cases, the IC completely dominates the decker's icon bandwidth. Increase the effective rating of the IC by 2 (even if the optional bandwidth rule is not in use). Of course, the decker cannot fight back at all with his icon down. All he can do is try to jack out before the IC kills him.

The Matrix connection automatically goes down if black IC kills the decker. But before it turns the deck loose, the black IC gets a shot at the MPCP, making the attack as if it were blaster IC, with *double* its rating. If the black IC completely destroys the MPCP, the IC deletes *all* data downloaded by the decker during the run. It deletes any such data stored in any connected storage memory as well, and reduces the MPCP's Rating to 0.

Lethal black IC damage overflows in the same manner as Physical damage to a **Shadowrun** character. Overflow damage from lethal black IC represents increased levels of brain damage. If the overflow is high enough, the decker may receive irreversible damage that leaves him brain-dead even if life support can be established. If the decker can be revived, all the rules for Deadly damage apply (p. 115, **SRII**).

If a decker is using a "cool" deck, lethal black IC acts the same as non-lethal black IC and causes Stun damage. (See **Cyberdecks**, p. 85, for details on "hot" and "cool" decks.)

Cybersushi, who has Body-4 and Hardening-1, is rummaging around a Red-8 system when he runs into a black IC-10 program. The IC attacks him and hits, scoring 2 successes on its Attack Test. We won't worry about what happens to the icon—Cybersushi has enough troubles of his own.



The 2 successes stage up the Damage Level from Serious (S) to Deadly (D). Cybersushi takes a 10D hit from the IC! His Hardening reduces the Power of the damage to 9. With only 4 Body dice, Cybersushi is not thrilled by this benefit. He adds 4 Karma Pool dice to the Body dice for the Resistance Test and achieves 2 successes, which stage down the Damage Level to Serious. Close call.

Cybersushi fills in 5 boxes on his Physical Condition Monitor. Meanwhile, the IC rips his icon into junk logics and takes complete control of his icon bandwidth.

On its next action, the IC whacks Cybersushi again. Now his icon is down, so the IC's rating is up 2 points, to a 12! It scores 1 success this time, so Cybersushi has to resist 12S damage, which his Hardening-1 reduces to 11S. Good luck, Soosh.

Permanent Effects

Any Deadly wound may produce permanent aftereffects (see p. 113–114, **SRII**). This rule applies to damage caused by black IC as well. In addition to the permanent damage listed in **SRII**, these aftereffects may include neurological damage that produces memory lapses, hallucinations, tremors, phantom pain, migraines, or similar conditions. In the case of neurological damage, the gamemaster may devise his own rules for the long-term effects—perhaps cannibalizing the rules from **Cybertechnology** for the TLE and CCSS syndromes—or permanently reduce the decker's Intelligence Attribute by 1.

NON-LETHAL BLACK IC

Non-lethal black IC functions in the same manner as lethal black IC, with the following exceptions. First, non-lethal black IC causes Mental, not Physical damage. Deckers resist such damage with Willpower Tests. If damage from non-lethal black IC renders a decker unconscious, the decker's Matrix connection is automatically broken. However, the non-lethal black IC still gets a final shot at the cyberdeck's MPCP and the data downloaded during the run. In addition, non-lethal black IC works the same on both "hot" and "cool" cyberdecks.

Mental damage done by non-lethal black IC can overflow into the Physical Condition Monitor.

PSYCHOTROPIC BLACK IC

Psychotropic black IC functions in the same manner as non-lethal black IC, with the following exceptions. When a decker jacks out or is rendered unconscious by damage and dumped, he makes a Willpower (Psychotropic Black IC Rating) Test to determine if the IC program caused lasting psychological trauma. Reduce the target number by 2 if the decker is using a cool cyberdeck.

If the test succeeds, the decker suffers no psychological effects. If it fails, the IC implants its psychotropic effect in the decker's mind. These effects may vary widely, but a few of the commonest ones are described below. Creative gamemasters may devise numerous delightful variations on these themes as they wish.

See **Recovering from Psychotropic Effects**, p. 50, for information on recovering from the various effects of psychotropic IC.

Cyberphobia

Cyberphobia is a profound fear of the Matrix, decking, and all related concepts. Any character afflicted with cyberphobia must make a successful Willpower Test against the rating of the psychotropic IC that caused the phobia before he can jack into a system. Also, add the IC's rating to the target numbers for all tests the character makes when decking, programming, working with hardware, you name it. As a rule of thumb, the phobia affects any task involving computers or the Matrix.

Drugs or spells inducing fear-free responses, tranquilizers, and the like may reduce the phobia penalty by up to half. Adrenal conditioners with endorphin analogues are the best bet. These drugs are only mildly addictive, cost 25 nuyen per rating point and are available without prescription up to a rating of 4. A dose lasts for about a day. Once medicated or under magical treatment, a decker suffering from cyberphobia can begin recovering.

Judas

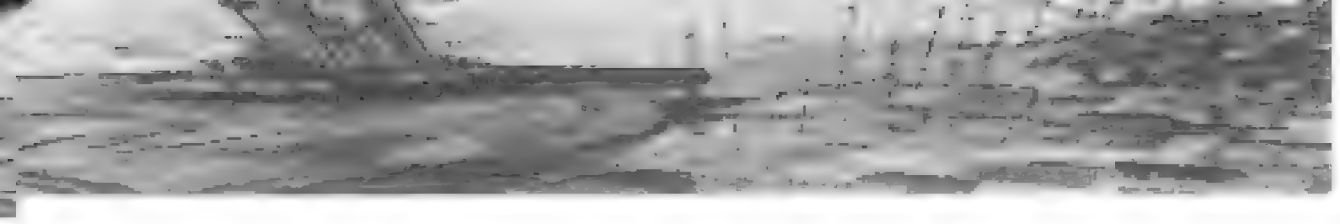
The so-called Judas effect is a subliminal compulsion to betray one's self and one's colleagues. A decker suffering from the Judas effect leaves clues, both in the Matrix and the real world, that lead to his location or reveal the identities of his colleagues. An afflicted decker is not aware, however, that he is doing this. To simulate the effects of the syndrome, the gamemaster may simply lie about tests made to defeat trace IC programs or increase the decker's target numbers in such tests by a penalty equal to the rating of the psychotropic IC program that caused the Judas effect.

The afflicted character simply performs other roleplaying actions without any conscious awareness. For example, if someone were to ask the decker if he was the one who scrawled the samurai's commcode on the corporate office's front door with hot maroon lipstick, he would really believe it when he said "No." He'd even beat a lie-detector test. Make a secret Willpower (Psychotropic IC Rating) Test for the character whenever he is about to perform a compulsive act that would betray himself or others. If the test succeeds, he resists the compulsion. (However, all this is subconscious and the decker has no idea what his mind is up to.) If the test fails, the decker carries out the compulsive act with an effective Stealth Skill Rating equal to the rating of the psychotropic IC that infected him. If another character is present when the decker performs a compromising act, make an Intelligence (Psychotropic IC Rating) Test for that character. If the test succeeds, the other character notices the decker's actions. The same test applies to any character monitoring the decker on a Matrix run or reviewing logs of his runs.

If the decker's companions detect his condition and prevent him from acting out his compulsion, he may begin recovering from the effects.

Matrix Maniac

A decker infected by Matrix maniac IC recovers consciousness in a maniacal state of rage. He may attack persons at random, flee in howling terror, gibber, rant—you name it. In combat, the decker fights no-holds-barred, firing weapons full-auto if he



can, using his nastiest weapons in physical combat, and so on.

This state lasts until the decker is killed or knocked out. However, the state resumes when the decker regains consciousness. A foolishly over-kindly gamemaster may allow the character to make a Willpower (Psychotropic IC Rating) Test every 24 hours to see if the decker finally wakes up in a non-psychotic state of total exhaustion (though the Matrix-maniac conditioning might be designed to produce *periodic* maniacal states, of course).

Magic or drugs may suppress the rage and allow the character to recover. Tranq patches (p. 250, **SRII**) or equivalent medication with a total rating equal to the psychotropic IC's rating suppress the rage for 24 hours, whether they knock the decker out or not. Control Thought or Control Emotion spells (p. 156–57, **SRII**) also can be used.

Positive-Conditioning Psychotropic IC

Positive-conditioning psychotropic IC (PCPIC), more commonly known as "I-love-the-company" IC, is not truly black IC because it does not harm the decker. PCPIC compels the decker to jack out, rather than damaging him. Use the usual rules for black IC, but the decker has to make a Willpower (Psychotropic IC Rating) Test to avoid voluntarily jacking out. If the decker has taken damage, apply a target modifier based on the character's Damage Level (+1 for Light damage, +2 for Moderate damage, +3 for Serious, and +5 for Deadly). The character repeats the test every turn after the IC hits, so it's only a matter of time before the decker is forced out of the system.

Once the decker has jacked out, he may make a Willpower (Psychotropic IC Rating) Test to negate all subsequent effects of PCPIC.

If the test fails, apply a +2 target modifier to all tests the decker makes when he performs actions that might harm what he perceives as the best interests of the company or other group or individual that employed the psychotropic IC. This involves not just Matrix actions ("steal data from *them*? Never!") but anything else ("Help you break in and steal hard copy documents from *that* corporation? I'd rather shoot my granny.") The decker may make a Willpower (Psychotropic IC Rating) Test to avoid this penalty on each occasion.

For actions that normally do not require a test (such as deciding to infiltrate the company's premises illegally), the decker must make tests using a relevant Attribute (usually Willpower) against a Target Number 6.

Corporate programmers with a sense of humor have been known to include more positive elements in PCPIC as well. These PCPIC programs not only make the decker reluctant to participate in acts against the company, but impel him to buy their products. Honestly.

PCPIC may not be part of any party IC in combination with any other form of black IC.

RECOVERING FROM PSYCHOTROPIC EFFECTS

Characters may recover from psychotropic IC effects by making Willpower Tests against the rating of the psychotropic IC program that infected them. A character afflicted with the Matrix maniac effect must make the test daily. For other effects, characters repeat the test weekly. If the decker is under appropriate medication or magical treatment, reduce the target number by 1. If under intensive psychotherapy, which requires the Hospitalized Lifestyle, reduce the target number by 2 (medication is part of therapy, so these bonuses are not cumulative). If kept under maintained, locked, quickened, or other spells with the desired effect, reduce the target number by an additional 1.

Recovery from PCPIC is more difficult because it involves aversive counter-conditioning (i.e., the decker has to be conditioned with graphic images showing the corporation to be utter bastards, despoiling the environment, murdering children, and the like). Raise the target number for these tests by 1 to reflect the unpleasantness of the procedure.

IC DEFENSIVE OPTIONS

Any IC program may be fitted with three defensive options: armor, shield, and shift. Shield and shift defenses are incompatible with each other, though both are compatible with the armor option.

ARMOR DEFENSE

Armor defense reduces by 2 the Power of any attack against the protected IC. For example, armored IC attacked by an Attack-6M utility would make its Resistance Test against a Target Number 4.

SHIELD DEFENSE

The shield defense adds a +2 target modifier to all tests a decker must make to hit the protected IC in cybercombat.

Combat utilities with the penetration option defeat IC's shield defense automatically and do not receive the +2 penalty. However, the shield defense is extra-effective against programs with the chaser option, which must add a +4 modifier to the target number.

SHIFT DEFENSE

The shift defense enables an IC program to "dodge" incoming attacks. It adds a +2 target modifier to all tests a decker must make to hit the protected IC in cybercombat.

Combat utilities with the chaser option defeat the shift defense automatically and do not receive the +2 penalty. However, the shift option is extra-effective against programs with the penetration option, which must add a +4 modifier to the target number.

TRAP IC

Trap IC is IC that is linked to gray or black IC. Any reactive, white, or trace IC program can be used as trap IC. If trap IC is destroyed in cybercombat (or in the case of trace, if it finishes a location cycle successfully) it triggers the hidden gray or black

If the decker neutralizes the trap IC without destroying it, it does not trigger the gray or black IC, which remains hidden and inactive.

Applications, files, and slave remotes can be fitted with hidden gray or black IC programs as well. The decker triggers these programs when he crashes the protected Icons or fails a System Test made to control the Icon. The trapped data bomb is a particularly nasty variation of this arrangement. If a decker's test against the booby-trapped subsystem fails, the trap IC goes after him and detonates its data bomb if it locates him. Only a successful Deluse Test enables a decker to destroy both IC programs.

A decker can detect trap IC by performing an Analyze IC operation against the white IC or an Analyze Icon operation in the case of some other Matrix entity fitted with trap IC.

OPTIONAL RULES

The following optional rules describe particularly lethal variations of IC and suggest ways to combine types of IC into even more threatening gamemaster tools.

CASCADING IC

When cascading IC misses a decker in cybercombat or fails to damage a decker when it scores a hit, it allocates more system resources to future attacks. Any proactive IC program may be programmed to cascade.

If cascading IC misses on an attack, increase the Security Value used for its attacks by 1 for each subsequent Attack Test. This increase is cumulative—each time a test fails, add an additional point to the Security Value.

If the IC program attacks successfully but the decker resists all of the damage or otherwise neutralizes the IC's effect, increase the IC's rating by 1 for subsequent attacks. These increases are also cumulative.

The maximum increase depends on the Security Code of the system, as shown on the Cascading IC Table.

The optional cascading IC rule makes IC more dangerous for deckers. However, deckers may minimize its effects by quickly suppressing IC programs as they encounter them (see **Suppressing IC**, p. 40).

CASCADING IC TABLE

System Security Code	Maximum Increase
Blue	1
Green	25 percent of original rating or 2, whichever is higher
Orange	50 percent of original rating or 3, whichever is higher
Red	100 percent of original rating or 4, whichever is higher

FastJack is under attack by a cascading Killer-5 program on a Green-5 host. Its first Attack Test uses 6 dice. The test fails, and so the next time it makes an Attack Test it rolls 7 dice. If the test fails again, the value rises to 8—which represents a 25-percent increase over its original rating, and so its maximum increase.

Now, let's say the IC hits Jack but he reduces his damage to nothing. The IC's rating, which is the Power of its damage, would start to cascade. Because the IC is a Killer-5 program on a Green host, its rating may increase by 2.

So, if FastJack is "lucky" in early exchanges with the IC program, he will eventually find himself facing the equivalent of Killer-7 on a Green-8 host!

EXPERT IC

In Matrix 2.0, expert IC may be used to increase the attack rating or damage-resistance rating capabilities of proactive IC programs and Matrix constructs (both of these ratings are based on the host/grid's Security Value—see **IC Ratings**, p. 40). However, increasing one rating reduces the other automatically. For example, using the expert modification to increase the attack rating of an IC program by 3 would reduce the program's damage-resistance rating by 3. The expert modification may increase or decrease ratings by 1 to 3 points.

For an Expert Offense-2/Blaster-5 IC program on a Red-6 host, the Attack Test would use 8 dice (Security Value of 6 + expert modification of 2). The gamemaster would roll only 4 dice for any Damage Resistance Tests made for the IC.

CONSTRUCTS

A construct is a gamemaster-designed icon that consists of two or more IC programs combined in a Matrix "critter."

Constructs should display cunning, using nasty tricks and tactical smarts. To reflect this, constructs may have Threat Ratings (p. 187, **SR II**). On Green systems, construct Threat Ratings may not exceed 1. On Orange systems, these Threat Ratings may not exceed 2. On Red systems, Threat Ratings may not exceed 3. Constructs on Blue systems may not have Threat Ratings. Threat dice may be added to all tests except Initiative rolls.

Threat Ratings may make constructs too dangerous for satisfying game play, especially with beginning deckers, and so gamemasters may skip giving constructs Threat Ratings in their games. On the other hand, even beginning deckers should have the sense not to get into systems that are likely to contain constructs.

Building Constructs

Constructs provide an excellent way to create protected forms of reactive IC. To do so, simply pair a reactive form of IC with a proactive form. Any IC program may be included in a construct.

A construct's capacity is equal to twice the Security Value of the IC's parent host or grid. The combined ratings of the IC programs in the construct may not exceed its capacity. No single IC program may have a rating greater than two-thirds the host/grid's Security Value, rounded up. So, on a host with a Security Value 8, a construct can hold IC programs with combined ratings of 16 points. No single program in the construct can exceed 6, which is two-thirds of 8, rounded up.

Gray IC programs consume an additional point of capacity (for example, a Blaster-4 would use 5 points of a construct's capacity). Black IC uses 2 extra points. Constructs may be assigned armor, shield, and shift defensive options as well (see **IC Defensive Options**, p. 50). Each option selected uses up 2 points of the construct's capacity. So, if a construct with a capacity of 16 was fitted with the armor and shift options, the construct would have 12 points left over to divide among IC programs.

Constructs in Cybercombat

Constructs are always proactive, because building a construct with no proactive components offers no advantage.

A construct can attack any available target in cybercombat, using any one of its available programs. Resolve attacks against the construct as if it were a single icon. A construct has a single Condition Monitor. Fill that in, and the whole thing crashes—all its programs stop running.

As with individual IC programs, constructs use the host/grid's Security Value when making Attack Tests and Damage Resistance Tests. The ratings of the individual IC programs are used to determine their effects only.

Constructs can use combat maneuvers as well (see **Cybercombat**, p. 121). When designing a construct, the gamemaster should determine its basic combat approach: stand up-and-slug; sneaky, popping in and out of detection; going for killer positions in Matrix dogfights; and so on. Some corps tend to consistently choose certain behaviors for their constructs. Ares constructs use lots of maneuvering and tactical trickery. Aztechnology loads its constructs with powerful IC programs designed to overcome opposition by brute force.

A construct's Initiative is based on the lowest rating of all its component IC programs. (See **Cybercombat**, p. 120, for details.)

PARTY IC

Party IC consists of a cluster of independent programs that work cooperatively to destroy the decker. Unlike constructs, the component programs of a party IC cluster do not form a single icon. A decker dealing with a three-piece cluster of party IC would have to defeat each piece separately. However, party IC differs from individual pieces of IC in several ways.

First, any proactive IC program in a party IC cluster suffers a penalty on its Attack Tests because the host is dividing its attention among the programs. Increase the target number for all Attack Tests made by party IC programs by the number of programs contained in the party IC cluster.

Second, party IC programs are harder to hit because they surround the decker's processing space with rapidly shifting target addresses. Increase the decker's target number to hit any component program in the party cluster by the number of IC programs in the party cluster. Combat utilities with the area effect option defeat this feature, however, and the penalty does not apply to tests made with such utilities.

These modifiers continue to apply even if the decker crashes one of the component programs of the party IC.

Building Party IC

Every party IC cluster has a capacity equal to twice the host/grid's Security Value. The combined ratings of the party cluster's component IC programs may not exceed this capacity. As with constructs, treat the capacity as a pool of points used to "buy" IC programs.

The maximum number of components in a party IC cluster is equal to half the Security Value. Non-IC component programs may have any rating.

All the options available for individual IC programs are available for party IC. Each option added to a party IC cluster consumes 1 point of the cluster's capacity.

HOST SHUTDOWN

If IC programs and constructs fail to stop an intruder, a host computer may shut itself down completely to dump the decker. Unlike a decker-initiated Crash Host operation, a host shutdown involves a number of steps, such as gracefully terminating running programs, transferring controls to back-up systems, closing files to avoid damage, and so on.

Hosts begin the shutdown procedure when the decker reaches a predetermined Security Tally threshold. (Typical thresholds for different hosts appear in **Matrix Hot Spots**, p. 149). When the shutdown threshold of a host is reached, the gamemaster rolls 1D6 for every 2 points, or fraction thereof, of the host's Security Value. For example, the gamemaster would roll 1D6 for a host with a Security Value of 1 or 2, 2D6 for a host with a Security Value of 3 or 4, and so on. The result of the roll indicates the number of Combat Turns the host's shutdown sequence will last. In addition, the gamemaster should roll 1D6/2, rounding fractions up. The result of this roll indicates the "final warning" turn.

Once the shutdown sequence begins, make a secret Sensor Test for each decker in the system. Make these tests at the end of each Combat Turn against a target number equal to the number of Combat Turns remaining in the shutdown sequence. Continue the tests for each decker until one succeeds. At that point, that decker knows that the host is in shutdown mode, but not when it will go.

Whether or not deckers have detected the shutdown, inform all deckers in the system that the shutdown sequence is in progress when the sequence reaches the final warning turn, and tell the deckers how many turns remain before final shutdown.

The host actually shuts itself off at the end of the last Combat Turn in the sequence. Any decker online when the host shuts down is dumped and may suffer Dump Shock as a result. All frames and other programs the decker has running crash. Ongoing and monitored operations (see **System Operations**, p. 110) terminate as well.

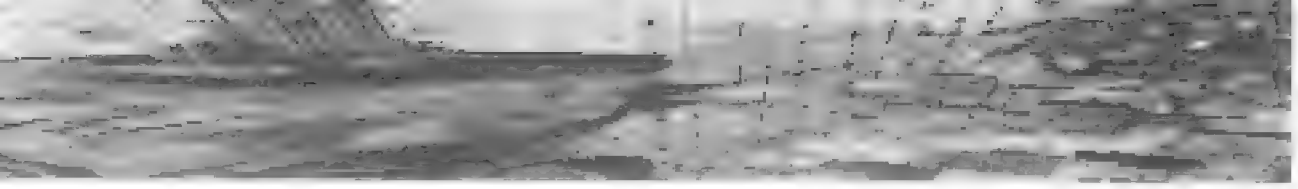
SOTA IN FEAR

[Hootay, shadowfolks, we got a hot doc for you.

One of our more enterprising users came across this during a midnight run on the system security manager's personal LAN workstation at a certain corporation that shall remain nameless. Looks like the wageslave deckpunchers are getting into some teamwork. Bad news for us, so read this carefully. The brain you save might be your own. Heeeeee.

—Captain Chaos (13:24.27/05-12-56)

BERGTING '95



-<<HEADER DAMAGED: .07 Mp CORRUPTED>>:Internal Memo-
FROM: Manager, Data Security
TO: Staff
Dear Colleagues,

Attached please find summary digests of the papers from the Countermeasures Symposium at the recent Corporate Security Managers Online Conference. Please treat this material as company confidential and do not circulate it outside staff authorized as need-to-know, even here onsite. I will welcome any suggestions for including these concepts in our own security arrangements at the unit workout session next week.

Regards,
-- DATA DAMAGED: .005 Mp CORRUPTED>>
-END Internal Memo-

>>>>>(What, he corrupted his own signature? What a drek-brain!)<<<<<

—Vanity (21:51:32/05-12-56)

>>>>>(Take out a loan and buy a clue. The decker who ripped the mail filed the numbers off. That way, some sneetch for the corps can't get in here and tell Mr. Corbaeck that his security's compromised. What would you want to do? Take out an ad on Seattle Spy telling everyone you did this great datarip?)<<<<<

—Mom On The Run (09:08:34/05-13-56)

-DISPLAY Attachment
*** COMPANY CONFIDENTIAL ***
Intercorporate Security Management Conference
Intrusion Countermeasures Symposium

1. An Enhanced CounterIntrusion Location Constellation Alicia Spotted Serpent, Santa Fe Security Systems, Pueblo Council

>>>>>(Constellation? What is this, astronomy or comp sci?)<<<<<

—Bendix (19:42:12/05-13-56)

We have developed the following algorithm under the Cooperative Constellation IC model, developed in the Pueblo Corporate Council as part of a joint effort by a consortium of leading software development houses

>>>>>(Oh, that* must be the fancy name for party ice. Never mind.)<<<<<

—bendix (19:48:01/05-13-56)

The development environment was a Mitsuhama Yoritomo mainframe with Security Value benchmarked at 10. We then tweaked the code under VM emulations at Values of 8 and 6. Performance remained within the parameters documented in the evaluation summary in the full document.

The short-form code index of the basic implementation follows

Host Security Value:

6	8	10
Trace-4*	Trace-6*	Trace-5*
Probe-2	Probe-4	Probe-4
Killer-5	Killer-6	Killer-6
		Tar Baby-3

*All trace code is offensively augmented with onboard expert system code, with offense-oriented optimization and reciprocal defensive recalibration. On a host benchmarked at Security Value 6, this means an effective rating of 8 during the location cycle with a damage-resistance rating of 4. All values ±.00085 subject to extended floating point adjustment in the pulse transports for the host's system command compilers. See appendix IIc for detailed projections of efficiency issues in ported code.

>>>>>("Offense-oriented optimization and reciprocal defensive recalibration?" Combating IC is easy compared to decoding this drek.)<<<<<

—Nailer (18:58:12/05-12-56)

>>>>>(What it means is, if it gets at you, you're fragged. If you're swift enough and get the first strike in, you can take it down easy. Honestly, don't you people get an education these days?)<<<<<

—Plughead (21:49:31/05-12-56)

>>>>>(Education is being taught not to write drek like that.)<<<<<

—Nailer (23:12:12/05-12-56)

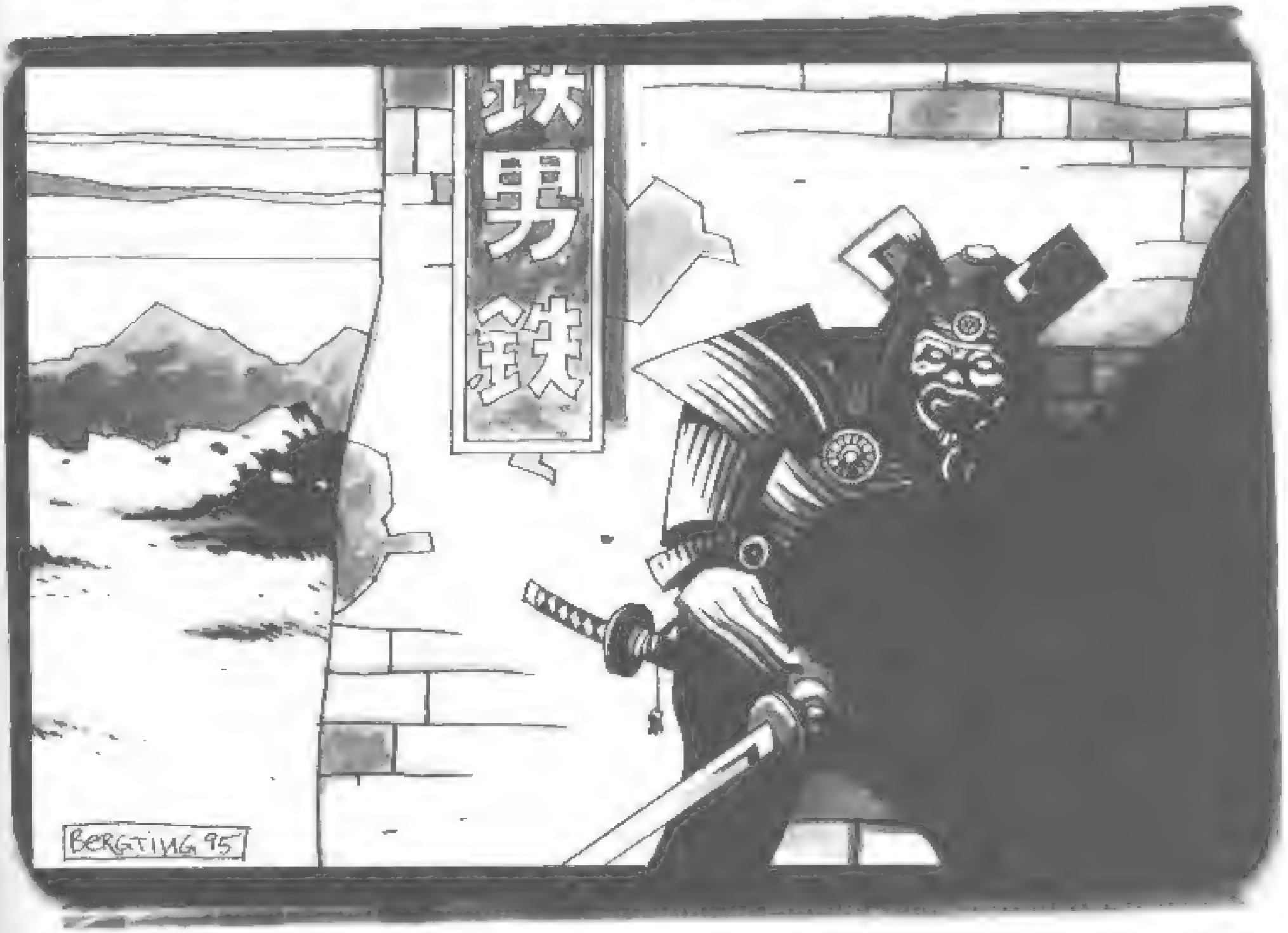
This particular configuration is designed for execution when intrusion is suspected but not confirmed. The killer program is activated in the following circumstances:

- Tar baby captures a utility.
- The trace completes its location cycle and isolates an illegal jackpoint. In that event, the killer program becomes aggressive, applying the –1 combat efficiency parameter to its attack instructions, due to the lock on the intruder icon's jackpoint.
- A relocate program is used on the trace component.

Naturally, as cooperative elements in a program constellation, the Level 6 and 8 implementations suffer a +3.0 adjustment to success probabilities, and the Level 10 version suffers a +4.0 adjustment. Against intruding icons on Orange-to-Red-range security systems, these inefficiencies are compensated for by baseline success probabilities. We project a target value of 7 to 9 on a Red-10 mainframe, for example, though low-trace intrusion routines would have a proportionately greater chance of avoiding detection.

>>>>>(Cripes, you frag with this at all and the killer's in your face!)<<<<<

—Vanity (21:55:50/05-12-56)



Iconography

The constellation is programmed to take its sensory cues from the operating system, defaulting to UMS in the absence of specific sculpture code. The initial commercial implementation was in a medieval Japanese metaphor, with the trace component manifesting as a hunting falcon, circling throughout the hunting and location cycles and swooping when it verifies the jackpoint's address. The killer program was an armored samurai guard; and the probe program appeared as a mounted daimyo watching the falcon from a hillside. In the Security Value 10 implementation the tar baby program manifested as a hidden ninja icon, which leapt into view and tried to snatch away utility icons from the intruding deckers.

>>>>>[Oh, is THAT what that was? Nasty. I fired off a relocate at the bird and this fraggin' ninja popped out of nowhere. Almost got my relocate code, and before I could whack it I'm playing kissyface with this fraggin' guy in samurai armor swinging a shot in' big sword. And every few cycles this hoopface on the hill is snappin' this little thing like a flyswatter makin' all kinds of noise. By the time I polished off the samurai, two more pieces of IC were scramblin' on me, and the ninja had grabbed my relocate and exploded. I barely got out with my hoop in one piece.]<<<<<

—Mr. Wonderful (23:16:06/05-14-56)

>>>>>[You were on a Mitsuhama? level 10 host? Jeez, Wonderman, you got more cojones than me.]<<<<<

—SuzyQ (23:17:48/05-14-56)

>>>>>[Well, that sorta follows anyway, mo'am.]<<<<<

—Mr. Wonderful (23:18:21/05-14-56)

>>>>>[display grin]<<<<<

—SuzyQ (23:18:35/05-14-56)

2. ZEUS-II Combat IC Construct
[NAME DELETED], Renraku Data Security Division

We got a new ZEUS-II construct that's really wizzer. Y'see we applied some of the Series 9 Gamma logics to try and get

better integration coefficients for construct-oriented ice. The MITM proceedings for summer '55 had some way-cool object holocode protocols that we thought should make for ... uh ... OK, look, it's all in the high-level design summary, OK, so look at that when you have a minute, it's really elegant, OK?

>>>>>(Oh Ghost, Renraku let Terrible Tony out of the programming section!<<<<<

—ExREN (02:40:47/05-14-56)

>>>>>(Who?)<<<<<

—Neonfighter (06:11:59/05-14-56)

>>>>>(Tony Bendorf, picked up his second Ph.D. when he was about 21, and maybe the only guy I know who scores negative-double digits on social interaction profiling tests. The most archetypal Matrix nerd you ever saw. Makes more money than God but they usually keep him in a cage, throw double-kaf sodas and the occasional inflatable object over the partition and get killer C code back.)<<<<<

—ExREN (14:15:02/05-15-56)

We ran up this implementation in a skunk works project on the HONE-8. After the prototype got stabilized, we did a set of regressions down the series from Security Value 10 to 6. Take a look at the object summary ...

Host Security Value:

6	8	10
Armor	Armor	Armor
Acid-4	Acid-6	Acid-8
Blaster-4	Blaster-6	Blaster-8
Cascade	Cascade	Cascade

See? See what we did? We got two defensive options in, and then we threw in an acid program to weaken the decker icon before the construct blasts the guy off the nets and fries his deck and everything. And if the construct runs into problems it starts cascading, like it doesn't matter which program it is, anything loaded into the construct core can cascade, whether it's the acid or the blaster, and, and the poor bozo won't know what hit him, really!

>>>>>(Yes, Tony. Very clever, Tony. Take your medication, Tony.)<<<<<

—ExREN (02:43:44/05-14-56)

There's some really unique metrics in the acid/blaster cascade calls, with interaction to drive the tactical decision table as to when to let go with the big hit. Y'see we found some transaction decoding methodologies in the last report on competitive techniques we got on <<DATA DAMAGED: 2.1 Mp Corrupted>>. OK, I guess I'm not supposed to tell you about that. The guys from <<DATA DAMAGED: .003 Mp Corrupted>> will probably recognize their stuff anyway when they look at the code logs—really good stuff, guys.

>>>>>("snort" Well, that just caused at least two coronaries and a reduction-in-grade for Renraku security management. Bendorf blowing the results of a deck run on a competitor in a general symposium with half the companies on the planet looking on. This guy has come close to killing me twice that I know of, but ya gotta love him.)<<<<<

—ExREN (9:46:09/05-15-56)

Iconography

Our main sculptor got this really great idea. I think he used to do some stuff for Olympian, before he got straight and joined Renraku, and so the construct appears in this stream of thunder clouds. It looks like some big old guy, a god or something he says, and the rain from the cloud is the acid. OK, and it eats away at the persona code until ZEUS is ready to use blaster, then it throws this really big lightning bolt, and it's really mindfragging how that looks on the ASIST—there's a recording of the sense impressions in the appendices, so tap that.

3. Fearmaster: Due Punishment for Computer Criminals
J. J. Johnson, Aztechnology Information Systems

Our management has agreed to cooperate in this symposium within the limitations of our corporate security directives. The following example of code, well-implemented at the time, has been cleared for possible compromise to our worthy competitors since it has been declared obsolete on Aztechnology systems and is being phased out as of this writing.

>>>>>(Are the Azzies always this touchy?)<<<<<

—Cereal Killer (09:12:49/05-16-56)

>>>>>(Actually, this is what they're like when they're being polite.)<<<<<

—The Chromed Accountant (22:02:54/05-17-56)

The program utilizes the constellation model developed by Aztechnology, though certain unscrupulous firms have attempted to claim the credit for this breakthrough in program interoperability, backed by governments that have a long history of short-sighted restrictions on the free market. For the benefit of our readers, we shall use the popular "party IC" jargon in discussing this program.

>>>>>(Right. Everyone knows the Pueblos developed party IC architecture: AZT would claim it invented air, if it thought it could get royalties on it.)<<<<<

—Wombone (13:29:11/05-14-56)

Host Security Value:
Black Psychotropic IC (Cyberphobia)-6
Expert Offense-2/Killer-5

Simple and elegant: a killer program to weaken the criminal scum's Matrix presence, followed by behavior-modification impulses, designed by a team of experts from Aztechnology Medical, to impose a fitting punishment on the invader—within the limits of compassion, of course, and applicable regulations

imposed by bleeding-heart governments on the use of so-called deadly force. Those tempted by Aztechnology's commitment to humane values are reminded that corporate jurisprudence applies on our native systems, and that any appropriate measures will be taken to preserve the well-being of our employees and stockholders from intrusion.

>>>>>[In case anyone missed the subtle hint, he means that exactly the same code constructs would run black ice on ya. No psych hangups, just sudden death. Even if ya can deck through a Level 6 host like a bullet through drek, ya wanta be real careful about it. This nasty.]<<<<<

—HeadCrash (04.14:27/05-13-56)

>>>>>[And on a system with even a hair more processing capacity, you could tart this up with something to set the decker up even worse, like rippers or something.]<<<<<

—Tooner (17.03:36/05-13-56)

>>>>>[Ugh—nasty thought. Though the more pieces you put in the party, the harder it is for them to hit you—or for you to hit them. Might slow it down some.]<<<<<

—Serena (09:42:55/05-14-56)

>>>>>[Run that black drek up to, say, Level 8 and it don't have to hit ya much, even if ya got really good hardenin'.]<<<<<

—NAME (11:02:14/05-14-56)

Iconography

<<DATA DAMAGED: 1.7 Mp Corrupted>> . entirely in keeping with our corporate sculpture guidelines.

>>>>>[Well, that's certainly in keeping with AZT's paranoia about letting anyone know what their cyberspace looks like.]<<<<<

—The Fodal (14:56 05/05-13-56)

4. Positive-Orientational Cumulative Conditioning Following Successful Psychotropic Neural Implantation
Dr. Werner Shallis, Transys Neuronet Psychotropic Laboratories
Transys Neuronet, Edinburgh, Scotland, UK

Legal considerations have compelled responsible corporate concerns to innovate developments other than aversive and phobic conditioning for dealing with the recidivist computer criminal. Transys Neuronet has played a pioneering role in such research and has recently completed two series of trials with captive experimental populations on positive psychotropic conditioning effects.

>>>>>[This means they got their hands on a bunch of imprisoned deckheads and fragged their brains. So much for "legal considerations."]<<<<<

—Slater (16:25:19/05-17-56)

Effects replicated in both experimental series include the standard phenomenon of positive response conditioning towards icons and images associated with Transys Neuronet, and a new experimental finding: that of cumulated conditioning. Psychotropic implantation was oriented toward engendering ongoing conditioning toward corporate imagery, and the data show an increasingly exclusive pattern of positive organismic responses occurring only with respect to such images. These data suggest that exciting possibilities now exist for marketing (Note: Copy to Marketing Division) corporate products following psychotropic implantation. Pre-existent data on neural and behavioral plasticity suggest that such conditioning procedures might be further optimized if they could be undertaken with younger experimental subjects.

>>>>>[Ohmygawd. Standard positive psychotropics means you get a nice warm glow when you see the company logo. What this swine is talking about is that when he's finished with you, you only get a nice warm glow in the presence of the company logo.]<<<<<

—Slater (16:44:12/05-17-56)

>>>>>[This might explain something. A friend of mine has certain, ah, personal difficulties. He finds it increasingly difficult to sustain a "positive organismic response" without an icon of Transys glowing on the wall.]<<<<<

—Brewer (21:11:15/05-17-56)

>>>>>[Don't be shy, Brewer. You mean you can't do the nasty without the Transys holo shining away. It's just the fighter-pilot syndrome all over again. After World War II, many fighter pilots had their states of arousal so entrained to the excitement of being in an aircraft cockpit that they couldn't do their husbandly duties back on civvy street. The therapists managed to figure out that putting a vacuum cleaner under the bed did the job, the association with the roar of the aircraft engines being enough to get the right response back. It's a simple effect: after all, for males there is virtually no difference in their physiology between states of sexual arousal, anger, and fear. It's called the 3F syndrome and the first two are "fight" and "flight." The pilot-thing was a conditioning of arousal to environment—now Transys's psychotropics condition arousal to an icon.

They're going to have a real lock on the market for cures for male dysfunction, aren't they? <grin>!

—Samantha (01:17:12/05-18-56)

>>>>>[Not to mention that sinister reference to "younger subjects."]<<<<<

—Slater (17:12.11/05-19-56)

>>>>>[This is a development of well-known subliminal tech used for corp wage slaves for some time. Jack in at your workstation and those little touchy-feely-warm-sensation stimuli operate just below the level of conscious awareness and it's really nice working for the company, ain't it? Strictly illegal, of course, but then what isn't?]<<<<<

—Grunge Monster (01:00:33/05-21-56)

MAPPING MATRICES

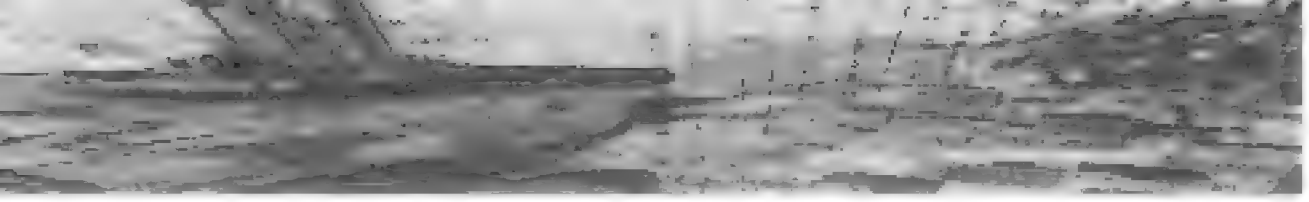
Alla BOXES, chummer, an' alla datapulses onna lines, trillions of 'em, an' they all connec', chummer, alluvem, ev'rywhere, like alla TIME!!

-Ruth Morton, Mitsuhama system designer, explaining her breakdown

Under Matrix 1.0, the majority of matrix systems used the UMS—the Universal Matrix Specifications (p. 167, **SR II**). Only a few systems accepted the overhead processing costs for creating custom, or "sculpted" systems. In Matrix 2.0, the increased availability of next-gen hardware and enhanced optical-code processes have made sculpted systems increasingly common. Some system-design shops still work in the UMS, but they are a dying breed.

In game terms, the Matrix 1.0 system layouts required detailed mapping. Deckers saw the specifics of the local Matrix or private matrices as they went from node to node. Under Matrix 2.0, no fixed maps exist for hosts. When speed is of the essence, the gamemaster and players can simply declare their actions, System Tests, IC attacks, and other pleasantries without considering the appearance of the Matrix at all.

NET
BERGTING 95



MAPPING MATRICES

SYSTEM ACCESS NODES

In Matrix 2.0, system-access nodes (SANs) connect host computers to grids and to each other, just as they did in Matrix 1.0. When a decker performs a Logon to Host operation from the grid or from a dedicated host connection, he enters the SAN icon for the host he is invading. The gamemaster needs to decide—in advance or on the fly—to which LTG a host with open access is attached. Similarly, if the host can only be accessed from a PLTG or via host-host access, then the gamemaster needs to make that choice.

(See p. 169, **SR II**, for more guidelines on these rules.)

SECURITY SHEAVES

A security sheaf describes the security measures in place on a host or grid as well as how the host/grid reacts to intruders. Quite simply, a sheaf consists of a list of trigger steps. These steps represent security tally thresholds. As a decker's security tally reaches each trigger step, the system activates one or more IC programs. Trigger steps also activate the various alert levels in a system. The alert status of the system, in turn, affects the types of IC programs the system activates.

The security code of the host/grid determines the frequency of trigger steps in a system, and the gamemaster determines the events activated by each trigger step. Gamemasters may use their own discretion or random generation to determine these events.

TRIGGER STEPS

As noted above, trigger steps consist of specific security tally numbers. Whenever the security tally of a decker reaches or exceeds one of a system's trigger steps, the system automatically activates one or more security measures, such as IC programs or alerts. Low-security systems, such as Blue hosts, maintain few trigger steps—as a result, they have fewer IC programs and other security measures. High-security systems, such as Red hosts, set trigger steps in small increments, and so they have more IC programs and security measures.

A system's security sheaf lists the system's trigger steps and indicates the events triggered at each step. The Sample Security Sheaf Table depicts a system that activates a Probe-5 IC program when a decker's security tally reaches 3. When a decker's security tally reaches 7, the system activates a Trace-7 IC program, and so on.

SAMPLE SECURITY SHEAF TABLE

Trigger Step	Event
3	Probe-5
7	Trace-7
10	Killer-8, Passive Alert
13	Party IC: Expert Offense 2/Acid 6, Killer 6/Armor/Shifting

Gamemasters may assign system trigger steps at their own discretion or generate them randomly. If generating trigger steps using dice rolls, roll 1D6 + 2 and apply the appropriate modifier from the Trigger Step Table to the roll result, based on the system security code.

To create a high-security system, simply use the lowest value in the security-code range when determining the system's trigger steps. For more mild-mannered systems, use the highest values when setting the steps.

For example, a low-security Blue host might have the following trigger steps: 6, 12, 19, 24, 31, 36, 42, and so on.

TRIGGER STEP TABLE

System Security Code	Die Roll Modifier/ Trigger Step Range
Blue	+4 modifier, for a final range of 5 to 7
Green	+3 modifier, for a final range of 4 to 6
Orange	+2 modifier, for a final range of 3 to 5
Red	+1 modifier, for a final range of 2 to 4

Multiple Triggers

If a decker performs several actions on a system that together add a large number of points to his security tally all at once, the increase may cover two or more trigger steps. In this case, the indicated events for ALL the triggered steps that have been reached or exceeded occur at once (otherwise known as "the drek hits the power supply").

ALERTS

After determining the intervals of the trigger steps for a system, the gamemaster chooses the IC programs and security measures activated by each trigger step. In order to determine an appropriate level of response for each trigger, however, the gamemaster must first determine the timing of the system alert.

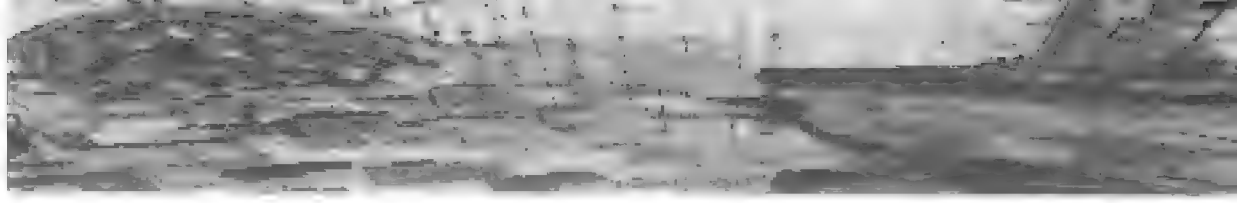
All systems have three alert statuses—no alert, passive alert, and active alert. The normal status for all systems is no alert. Specific trigger steps activate passive and active alerts. In turn, the alert status of a system determines the types of IC programs that go into action at the system's trigger steps.

No Alert

Generally, trigger steps under a no-alert status activate passive IC or trace IC programs.

Passive Alert

In a typical security sheaf, the third or fourth trigger step activates a passive alert.



MAPPING MATRICES

Passive alert means that a system suspects an intruder has invaded it, but is not 100 percent certain. Under passive-alert status, trigger steps typically activate proactive white or gray IC programs. Reactive IC tends to be trapped or part of a party IC cluster or combat-capable construct.

When a system goes on passive alert status, increase all Subsystem Ratings by 2.

Active Alert

A typical system goes on active-alert status on the second or third trigger step after the system goes to passive alert. Active alert means the system has verified the presence of an illegal icon.

Under active-alert status, trigger steps typically activate proactive and sometimes black IC programs. Trigger steps may also activate corporate or law-enforcement deckers in the system, and the system console operators may initiate a system shutdown.

Once a system reaches active-alert status, running away and sneaking back into the system become much more difficult for illegal deckers. Security personnel know that someone has been snooping around, and the system managers remain particularly vigilant for some time to come. This will lead to a very slow host reset (see **Host Reset**, p. 65).

RANDOM IC ALLOCATION

The following tables provide a system for using dice rolls to randomly generate IC programs for the trigger steps of a security sheaf. Gamemasters who choose not to use the random-generation system may still find these tables useful as guidelines for allocating IC programs. Table entries for low dice roll results can be used for relatively easy systems and entries for higher dice rolls used for more secure, hostile systems with data really worth protecting.

Special pieces of nastiness (notably worms) do not appear in the tables. The gamemaster should use these as special features of vicious systems that provide stiff challenges to deckers.

To use the random-generation system, first roll 1D6 for each trigger step and consult the appropriate column of the Alert Table. At the No Alert and Passive Alert levels, add the number of trigger steps that have already been passed at that alert level to the roll result. If the result indicates a type of IC—such as Reactive White, Proactive Gray, or Black—proceed to the appropriate IC table to determine the IC program at the trigger step. If the result indicates a move to a higher alert level, for the next die roll result consult the column for the higher alert.

After rolling on the Alert Table, move to the appropriate IC table. Roll 1D6 or 2D6, as indicated on the IC Table, to determine the specific IC program assigned to the trigger step. After determining the program, roll on the IC Rating Table to determine the rating of the IC program. Then consult the IC Options and IC Defenses tables and make the indicated dice rolls to determine the options and defenses the IC program carries.

ALERT TABLE

1D6 Result	No Alert	Passive Alert	Active Alert
1–3	Reactive White	Proactive White	Proactive Gray
4–5	Proactive White	Reactive Gray	Proactive White
6–7	Reactive Gray	Proactive Gray	Black
8+	Passive Alert	Active Alert	Shutdown*

*See **Host Shutdown**, p. 53.

REACTIVE WHITE IC TABLE

1D6 Result	IC
1–2	Probe
3–5	Trace
6	Tar Baby

PROACTIVE WHITE IC TABLE

2D6 Result	IC
1–5	Crippler*
6–8	Killer
9	Trap Trace**
10	Trap Probe**
11–12	Construct/Party IC

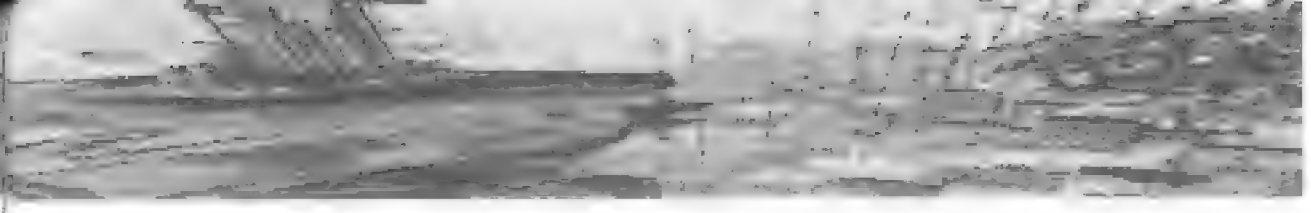
*Roll on the Crippler/Ripper IC Table to determine which persona attribute the IC attacks, then roll on the IC Ratings Table for the program.

**Roll on the Trap IC Table to determine the type of trap IC, then roll on the IC Ratings Table for both programs.

REACTIVE GRAY IC TABLE

1D6 Result	IC
1–2	Trap Probe*
3–5	Trap Trace*
6	Tar Pit

*Roll on the Trap IC Table to determine the type of trap program, then roll on the IC Ratings Table for both programs.



MAPPING MATRICES

PROACTIVE GRAY IC TABLE

2D6 Result	IC
2–5	Rippers*
6–8	Blaster
9–10	Sparky
11–12	Construct/Party IC

*Roll on the Crippler/Ripper IC Table to determine which persona attribute the IC attacks, then roll on the IC Ratings Table for the program.

BLACK IC TABLE

2D6 Result	IC
2–4	Psychotropic*
5–7	Lethal
8–10	Non-Lethal
11–12	Construct/Party IC

*The gamemaster may select his favorite type or roll 1D6. On a 1–3, Cyberphobia; on a 4, Judas; on a 5, Matrix Maniac; on a 6, PCPIC.

TRAP IC TABLE

2D6 Result	IC
2–5	Blaster
6–8	Killer
9–11	Sparky
12	Black IC

CRIPPLER/RIPPER IC TABLE

1D6 Result	Target Attribute
1–2	Bod
3	Evasion
4–5	Masking
6	Sensor

IC RATINGS TABLE

	System Security Value			
2D6 Result	4 or less	5–7	8–10	11+
2–5	4	5	6	8
6–8	5	7	8	10
9–11	6	9	10	11
12	7	10	12	12

IC OPTIONS TABLE

2D6 Result	Option
2	Cascading
3–5	Expert Offense*
6–8	None
9–11	Expert Defense*
12	Cascading

*Roll 1D6 ÷ 2 to determine the Expert modifier.

IC DEFENSES TABLE

2D6 Result	Defense
2–3	Armor and Shifting
4–5	Armor
6	Shifting
7	None
8	Shielding
9–10	Armor
11–12	Armor and Shielding

Gamemasters may modify the results from these tables depending on the Matrix system defending against the intruder. For example, black IC is significantly more likely to be encountered in an Aztechnology system than a Renraku system.

Constructs and Party IC

Under a no-alert or passive-alert status, constructs and party IC clusters typically include trace or probe programs, with combat IC or a tar program to provide cover. Under active-alert status, constructs and party clusters usually carry substantial offensive IC programs. (See **Intrusion Countermeasures**, p. 52, for more information on constructs and party IC.)

Sheaves on the Fly

The random-generation system enables a gamemaster to generate a security sheaf in advance or on the fly. The latter may

prove especially useful when a player-decker invades a system unexpectedly during a game.

For example, say that John invades a host rated Orange-7/11/14/13/14/13. Samantha, the gamemaster, has not prepared a security sheaf for the system, so she rolls 1D6 ÷ 2 with a result of 1. She consults the Trigger Step Table, which indicates a +2 modifier for a result of 1 on an Orange system. Now she knows that the first trigger step for the system is 3.

John logs on, racking up 2 points to his security tally in the process, then fails an Index Test, which raises his security tally to 4—past the trigger step. Time for something to happen, so Samantha rolls 1D6 for a result of 4. She consults the Alert Table: no alert is in effect on the system, so this means John encounters proactive white IC. Samantha consults the Proactive White IC Table, rolls 2D6, and achieves a 7—that means the IC is a killer program.

Next she goes to the IC Ratings Table and again rolls 2D6, for an 8. The system has a Security Value of 7, so that means the killer IC has a Rating of 8. Now Samantha rolls 2D6 on the IC Defenses Table and scores a 7, so no special defense is in play. However, she rolls a 12 on the IC Options Table. Bad news for John, he's just run into a Cascading Killer-8 IC program.

John crashes the IC in cybercombat. Samantha rolls again and consults the Alert Table to determine when the next trigger step occurs. Her 1D6 ÷ 2 roll yields a 2. She adds the +1 modifier for Orange systems and determines that the next trigger step is 6 (3 + the previous trigger step).

On the next turn, John runs into real problems and his security tally rises to 9. This is 3 points past the next trigger step, so Samantha rolls on the Trigger Step Table again to determine if he has triggered two steps. She rolls 1D6 ÷ 2 and gets a 1. She adds the +1 modifier for Orange systems and comes up with a 2. That sets a trigger step at 8. Between the first trigger step and his current security tally, John passed two trigger steps, at 6 and 8.

CAVEATS

Sometimes the random-generation system will produce a result that flunks a reality check. For example, a host won't launch a mage program if it has already located the decker's jackpoint. A mom-and-pop Blue host won't have black IC. Or the decker might not have any chance at all against the IC the tables summon up (assuming that this bothers the gamemaster). In these and other cases, the gamemaster may modify the results as he sees fit.

Gamemasters may also wish to adjust randomly determined IC ratings to better match the decker's defensive resources. The decker uses the rating of an IC program as his target number for Damage Resistance Tests when taking damage from IC, so the gamemaster needs to consider how the decker's defenses will change the "raw" IC rating. Once armor or similar persona defenses reduce the target numbers for the decker's Damage Resistance Tests, he could easily take 2 or 3 points of damage and survive. Results of 4 or 5 are more difficult to survive, and a result of 6 virtually guarantees the decker will take significant, if not fatal, damage.

HOST RESET

If a decker logs on to a host, raises nine kinds of havoc, jacks the host up to within a hair of shutting down and then logs off, he can't expect to hook back into that computer five minutes later and find that all is forgiven and forgotten. Undoubtedly, the host will still be running IC programs and other security measures. Before jacking back in, the decker will want to wait until the host "decides" to reduce its alert level, deactivate running IC programs and in general get back to work. That process is known as a host reset.

Blue systems reset completely in 2D6 minutes, during which time the host deactivates security measures and the security tally drops to 0. More secure hosts do not reset as quickly. Green, Orange, and Red hosts reset after 3D6 minutes, provided the decker did not trigger a passive or active alert in the system.

If a decker triggers an alert on a Green, Orange, or Red host, the system resets even more slowly. Roll 1D6 every 5 minutes for Green hosts, every 10 minutes for Orange hosts, and every 15 minutes for Red hosts. Reduce the system's security tally by the result. Any IC program left running when the decker logged off remains running until the security tally drops below the trigger step that activated the IC.

If any decker logs on to the host illegally before it finishes its reset, his security tally begins at the level the security tally had dropped to when the intrusion occurred.

Selena invaded an Orange host and raised its security tally to 18 before she logged off with a killer IC program and a construct both lusting for her chitlins. The system then began a host reset.

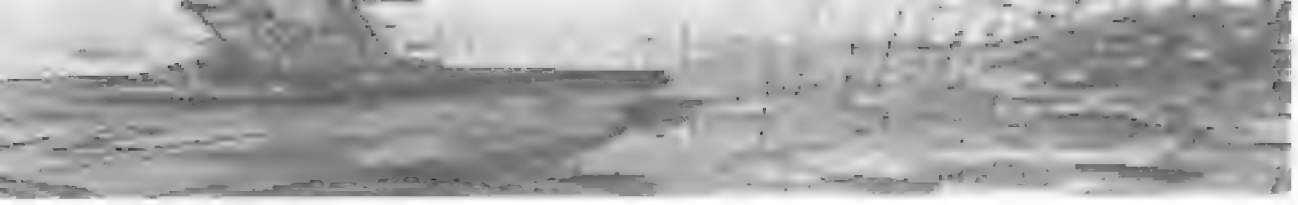
Half an hour later, when Cybersushi logs onto the same host, the system is still resetting. Its security tally stands at 6. During Selena's run, the host went on passive-alert status at trigger step 5, so the system remains on passive alert. The killer IC activated at 12 and the construct at 16, so both of these programs have shut down.

WHAT HOSTS DO

Host computers do not exist just to provide playgrounds for deckers. When designing a host for use in a game, think about the function the host serves in the "real world"—what data resides on it, what processes it controls, and the like. The host's primary function in turn determines if and why a decker would invade the host, and his likely goals when doing so.

PAYDATA

Virtually all host systems contain datafiles. The vast majority of these files offer nothing of any relevance to shadowrunners, but some contain information that may be quite valuable in the marketplace or may answer crucial questions. This information is called paydata. Paydata can be new technology from the big brains in R&D, business plans worth money to inside traders or



MAPPING MATRICES

competitors, incriminating information ripe for blackmail—anything with value on the black market that exists for secret data.

Gamemasters may determine for themselves the exact nature of any paydata contained in hosts in their games and role-play character's attempts to sell it on the black market. Alternatively, gamemasters may use the following random method for determining paydata and its value.

Deckers must use Locate Paydata operations (see **System Operations**, p. 115) to locate paydata. Guidelines for retrieving paydata appear below.

Paydata Points

The paydata random-generation method uses Paydata Points to measure the value of paydata. Characters may fence all Paydata Points for the same amount, whether they retrieve the data from a single file on a high-security system or from hundreds of Mp of trash files on less dangerous hosts.

A host's security code determines how many Paydata Points its files contain. Less secure systems contain fewer Paydata Points, and more secure systems contain more points. The Paydata Points Table shows the dice rolls used to determine the amount of Paydata Points on a system.

As stated above, deckers must download files to retrieve Paydata Points. The size of each file is determined by its data density, which varies according to the system's security code. The Paydata Points Table provides dice rolls for determining the data density of files on a system.

PAYDATA POINTS TABLE

System Security Code	Paydata Points	Data Density
Blue	1D6 – 1	2D6 x 20 Mp
Green	2D6 – 2	2D6 x 15 Mp
Orange	2D6	2D6 x 10 Mp
Red	2D6 + 2	2D6 x 5 Mp

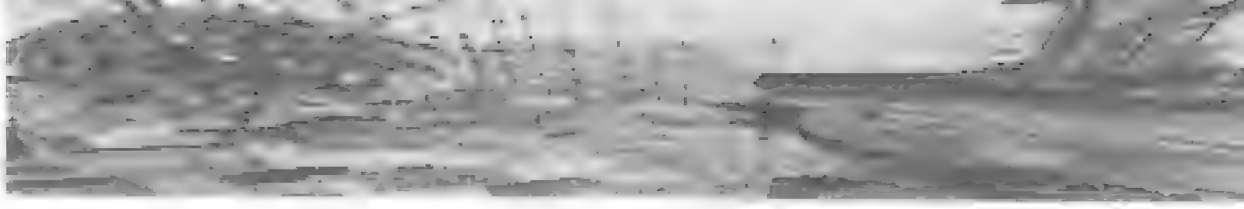
Gus logs on to a Green host and performs a Locate Paydata system operation.

Charlie, the gamemaster, consults the Paydata Points Table and rolls 2D6–2 to determine how many Paydata Points the system contains. He rolls a 5, so the system contains 3 Paydata Points.

Gus achieves 2 successes on his Locate Paydata operation, so he locates 2 of the Paydata Points. He decides to download the worthwhile files. Charlie again consults the Paydata Points Table to determine the data densities of the files containing the paydata. For the first Paydata Point, he rolls 2D6 for a 6. He multiplies that by 15 and finds that Gus has to download a 90 Mp file to get the first Paydata Point. For the second point, the gamemaster rolls again and scores 12. So for the second point, Gus has to haul down a 180 Mp file. The decker decides the paydata is not worth the effort and logs off.

Paydata Defenses

Generally, host operators do not leave paydata files lying around unprotected. On Green, Orange, and Red systems, paydata files may be linked to data bombs, scramble IC, or other defenses. The gamemaster may design such protections himself or roll 1D6 and consult the Paydata File Defenses Table to determine the defenses attached to paydata files on a system.



PAYDATA FILE DEFENSES TABLE

System Security Code	No Defense	Data Bomb	Scramble IC	Other*
Green	1–4	5	6	
Orange	1–3	4	5–6	
Red	1	2–3	4–5	6

*Per gamemaster discretion. Data bomb *plus* scramble may be used as a default.

Fencing Paydata

The base street price of a Paydata Point is 5,000 nuyen. However, the final price generally varies, as stolen paydata must be fenced like any other stolen property (see p. 188, **SRII**, for rules on fencing loot).

Deckers must move fast when selling stolen paydata. The black market changes very quickly indeed, and today's hot info is old news tomorrow. To reflect this condition, reduce the decker's stock of Paydata Points by 1 for each day it remains unsold. (This reduction does not apply to specific files invented by the gamemaster as part of the adventure. Mr. Johnson's prices are usually set in advance, and the time-sensitivity of such files depends on the story.)

The Nature of Data

For randomly determined datahauls and gamemaster-designed datahauls, design paydata that fits with the nature of the system being raided. When dealing with megacorporate systems, the gamemaster may find the corporate profiles in the **Corporate Shadowfiles** sourcebook helpful. For example, that book describes the Fuchi megacorp's major areas of interest as computer engineering, computer science, Matrix security, and fiscal operations. Logically, paydata retrieved from a Fuchi system will likely be related to one or more of these areas.

From these bare bones, the gamemaster may improvise. For example, a decker who snatched valuable paydata files from a Fuchi system may possess information that shows Fuchi has been surveying the costs of developing Matrix security software. Fuchi's competitors, such as Renraku, would probably be very interested in such information.

The **Corporate Shadowfiles** entry on Renraku describes the firm's high level of interest in both Matrix security and fiscal operations—so the idea fits quite well in the **SR** universe. In this manner, the **Corporate Shadowfiles** profiles also can help the gamemaster identify likely buyers for specific paydata.

Other **SR** sourcebooks provide background information for other corporations. For example, the SES corporation (**Tir na nÓg**) might possess parabiological datafiles. Cord Mutual (**Neo-Anarchist's Guide to North America**) would store data relevant to insurance, and the proprietors of Stuffer Shack™ would keep huge wedges of data on toxic and addictive food additives and the like.

Obviously, some systems, especially public-access systems, may not contain data of value to anyone. Keep in mind, however, that appearances may be deceiving. For example, the archival files of the Royal Armories of the Tower of London contain loads of cross-indexed entries on the development of German plate mail armor in the sixteenth century and similar subjects. Such data is hardly likely to earn the decker any funds. However, the Tower of London has a gory and intriguing history as well—the bodies of more than 1,500 executed persons, mostly nobles, lie buried beneath the stones of its small chapel. Who can say what politically devastating files might be found within the hosts of the Tower network?

Excessive Paydata Rewards

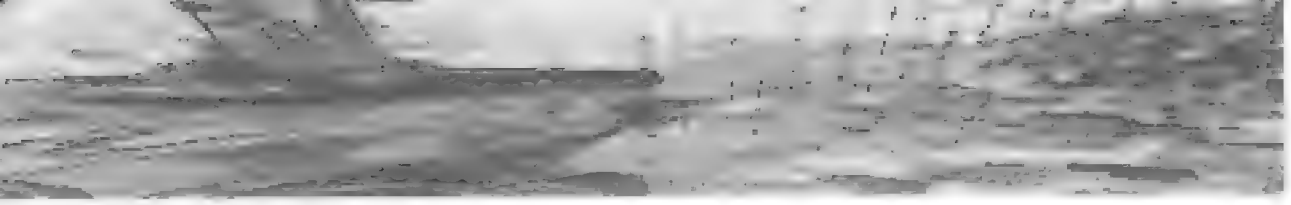
The random method for assigning Paydata Points allows deckers to make money when they need it. Unfortunately, some player character will inevitably discover that he can spend days on end doing nothing but cracking Green systems and hauling out enough paydata to become a millionaire by Friday. The gamemaster has numerous options for preventing this.

First, corporations and governments pay particular attention to repeat offenders. They expect and even allow a certain amount of datatheft from their systems, but if things get out of hand they send out investigative agents and nail the source of the problem with unmatched efficiency. Corps even cooperate to identify habitual criminals who spread out their thefts across numerous companies.

The increased corporate/government heat fueled by such deckers will most likely rakk off other deckers as well. They'll quickly notice that someone is spoiling the biz for everyone. They'll find out the name of the culprit from fixers and fencers and they'll respond.

Finally, deckers who accumulate large amounts of nuyen quickly attract the attention of other people, many of whom will immediately begin devising ways to relieve such a decker of his loot. When the decker realizes that his over-enthusiastic thieving is being matched by a similar rise in the number of burglaries and muggings he suffers, not to mention thefts from his own bank balances, he may see the advantage of limiting his efforts.

The gamemaster may also counter excessive greed by enforcing optional rules (especially those on Multiple Improvements and SOTA) to greatly increase the decker's need for money.



MAPPING MATRICES

SLAVE SYSTEMS

A host's slave subsystem handles any remote devices controlled by the host. Slave subsystems control a wide range of remote devices and systems, including automated vending machines, site-security controls, hospital medical systems, automated factories and laboratories, air- and ground-traffic control systems, power grids, telecommunications, and so on.

Gamemasters should determine whether a slave subsystem needs to be operated from a central host, and whether that host needs to be connected to the public grid. The UCAS Air Traffic Control net, for example, consists of a series of Orange and Red processors running in a Host-Host configuration over a government PLTG, with no direct connection to the public nets.

An automated factory, on the other hand, needs to order components and materials, update inventory databases, process orders, dispatch transport, and otherwise operate as part of a business. As a result, the hosts involved in running a plant must be accessible from the public grid in some way.

Very sensitive controls will almost certainly be on dedicated processors, with Orange or Red security levels, buffered from invasion behind chokepoints, tricky SAN designs, and layers of IC.

Security Remotes

Typically, corporations and other organizations use slave subsystems to operate the physical security infrastructure at a site. During a shadowrun, while samurai and magical assets go in on the ground, one or more deckers invade the host that controls the site's cameras, security doors and maglocks, alarms, and so on. The decker uses the Locate Slave operation to find the controls for a given security device and then employs the Control Slave or Edit Slave operations to take it over or suppress its alarms.

Another common decker trick is to use the Monitor Slave operation to eavesdrop on secret meetings over the very systems intended to protect such meetings.

Factories and Labs

To manipulate an automated factory, laboratory, or any similar process, a decker must possess a skill in how the process works or an expert system that provides that skill for him. For example, say a decker is altering the way an assembly line makes cars. This may be a subtle sabotage job, where the manufacturer is being set up to produce lemons, or a complicated piece of equipment stealing (after making a high-performance set of wheels, the decker is going to have it delivered to a neutral fixer and fudge the accounting records to make the vehicle look paid for). The decker needs to use Ground Vehicle B/R skill, or Automotive Engineering, to give the right commands to the slave subsystem. See the Control Slave operation for details (**System Operations**, p. 111).

APPLICATIONS

Applications are legitimate host programs that lack Matrix "intelligence" or direct user control. Application programs include spreadsheets, document processors, analytical programs, database search programs, and dumb-terminal sessions.

Saboraging an application, as opposed to simply crashing it, is a subtle mission. First, the decker must duplicate the program. Then he must alter the program so that it does whatever he has in mind: launch a frame at the appropriate moment, report findings, take output data to give bad conclusions or crocked results, and so on.

Assume that standard business applications have a design size of 1D6 x 50 Mp, and scientific or industrial applications have design sizes of 2D6 x 50 Mp. Double the size of applications that handle very complex processes or operations (stock market analysis, complex factory procedures, advanced scientific research, and so on).

To duplicate and alter such programs, a character must use a mainframe computer and possess a relevant skill. The character combines the relevant skill with his Computer Skill and uses the average of the two skills to make a test to perform the task. For example, a decker would make a Computer/Physics Test, using the average of his Computer and Physics skills, to rewrite a program to support or sabotage a physics research project. A team can use the highest skills of any of its members for such tasks. Skillsofts or other expert systems may be employed as well.

Deckers must use an Edit File operation to upload the new application program to the target host and place it into the file containing the original application program.

UMS AND SCULPTED SYSTEMS

In the Matrix, what you do determines where you are. A decker who succeeds in a Logon to Host operation on a grid moves into the host's SAN. Logging on from a workstation would put him in what Matrix 1.0 called an I/O port. If a decker makes an Index Test to locate something, he is in the addressing tables for the computer—an SPU or even the CPU under Universal Matrix symbolism (UMS). A Files Test would move the decker to a datastore or I/O port, a Slave Test to the slave node that controls the device in question, and so on.

On systems that use UMS icons, the gamemaster can describe the results of a decker's tests in terms of movement to the various nodes, even though detailed mapping is no longer required. A user in the Matrix can, in effect, reach any node from any other node by performing the appropriate operation. Location and description become matters of game color and atmosphere, not necessity.

The same concept applies to sculpted systems. However, unlike UMS systems, sculpted hosts possess a central metaphor, and all or most of the things the decker experiences conform to that metaphor.

CHOOSING A METAPHOR

Sculpted systems use custom-designed imagery rather than UMS icons. The megacorps started the trend and still maintain the highest levels of virtual reality and detailed design. However, more and more non-corporate systems, even the grids in places like Tir na nOg, are acquiring at least some level of distinctive sculpture.

MAPPING MATRICES

The central metaphor of a sculpted system defines the virtual reality of the system. When designing a simple sculpted system, choose a concrete name for its principal image: Office Complex, Castle, Amusement Park, Egyptian Palace, and so on. Complex systems? All limits are off. The Denver Datahaven is a flashing model of a fantastic solar system orbiting a massive black hole. The Mitsuhama Pagoda contains virtual villages where application icons toil patiently in the rice paddies of a cybernetic medieval Japanese milieu, and sensitive data is stored in fortresses that make Osaka Castle look like a kiddy toy.

Simple or complicated, the gamemaster should pick a metaphor he can have fun with. Don't worry about accuracy in historical or literary settings. Designers in the film and sim industries have been putting zippers on medieval gowns for at least a century. Ninety-nine percent of Matrix sculptors go for what looks chill, not what matches the history books. Natch, if the gamemaster is personally wiz at, say, Victorian London, then the most realistic sculpted system in an adventure might happen to recreate the milieu of Sherlock Holmes and Jack the Ripper. In any case, the metaphor should capture the gamers' imaginations, and suggest images that fit the commonest System Tests and system operations.

Hosts in a linked network, certainly sharing host-host access, usually share the same metaphor. Keep in mind that these metaphors are usually intended to make day-to-day work easier and more intuitive for the people who use these computers.

EFFECTS OF SCULPTED SYSTEMS AND REALITY FILTERS

When a decker logs on to a sculpted system, everything he does or senses is explained in terms of the system's central metaphor. He has to act as if the metaphor were his reality. If his icon is in a virtual corridor, for example, he cannot walk through the walls. If a decker insists on describing his actions in terms that do not conform to the system's central metaphor, apply a +2 modifier to all target numbers for tests he makes in the system.

System sculpture can slow down deckers whose MPCP imageries, or reality filters, do not conform to the system's central metaphor. The gamemaster determines whether this happens.

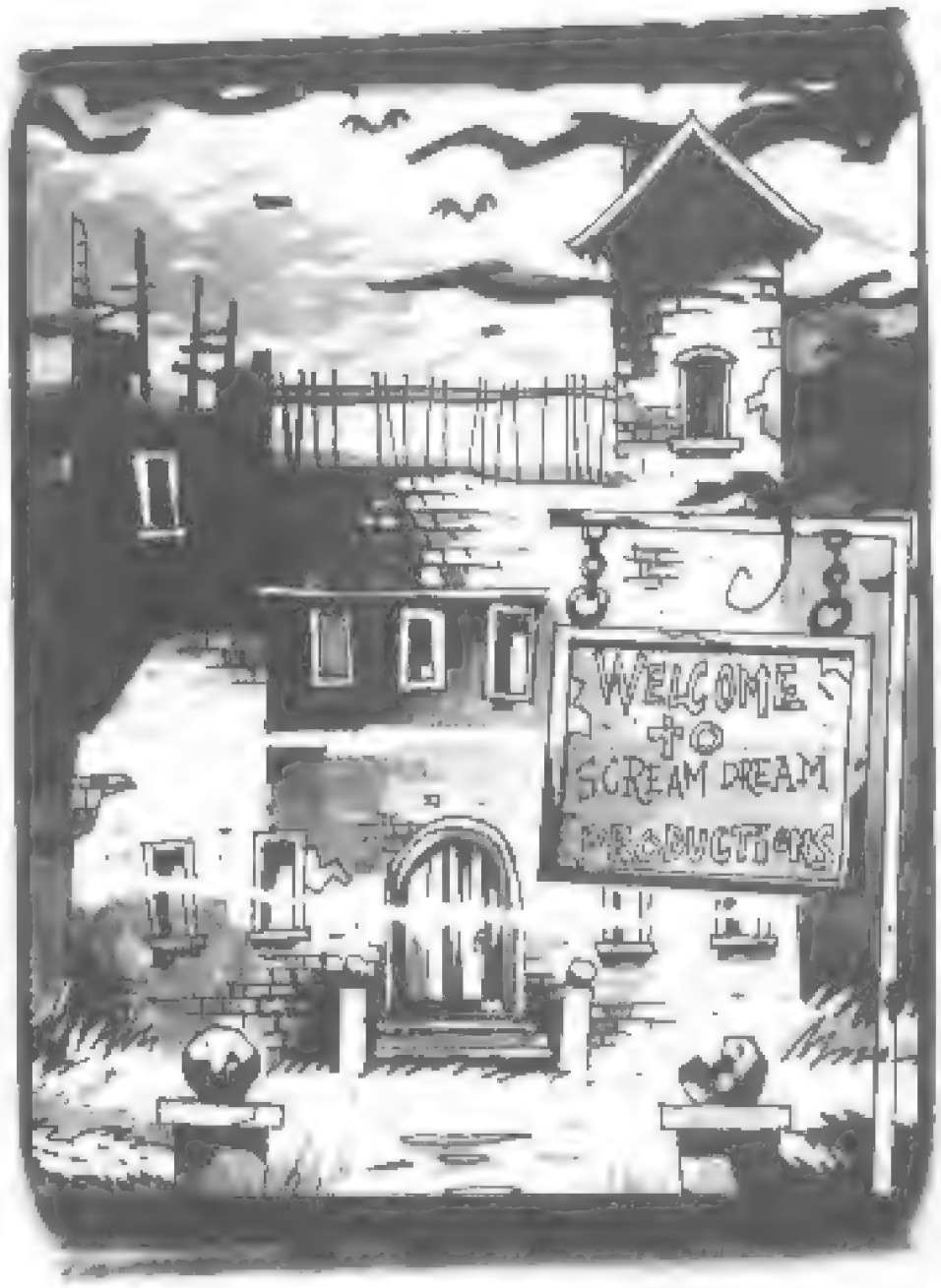
If the decker's icon doesn't fit the metaphor on the sculpted system, the decker rolls an MPCP Test against the system's Security Value. If the test fails, he loses 2 points from his Reaction and 1D6 of Initiative as long as he remains within the sculpted environment. (System sculpture can extend over linked hosts in a network, even over an entire PLTG and its attached hosts, so the decker may suffer the penalties for quite awhile.)

If the test succeeds, his filter dictates the system architecture during the run, and his initiative bonus for using the filter remains intact.

MAPPING SCULPTED SYSTEMS

In Matrix 2.0, formal system maps, like the UMS diagrams used under Matrix 1.0, are unnecessary. Gamemasters need only note, either on paper or mentally, the appearances of the main subsystems.

For example, ScreamDream Productions, a simsense studio that grinds out wildly popular horror adventures, has sculpted its



headquarters host with a Haunted House central metaphor. The system is full of characters and settings from ScreamDream sims. Logging on, one walks through a mist-covered front yard, as vague voices mutter at the edge of comprehensibility all around you. When you knock on the massive, Victorian front door, the lumbering butler from *Blood of the Goblins* opens it and demands the passcode.

The great central hall is modeled after the site of the final massacre in *Revenge of the Living Corpses*. From the hall, stairways and passages wind off in many different directions. Searching for a file leads to the extensive library upstairs, where poisonous spiders guard sensitive file pointers, and a secret door leads into an old dungeon (from the horror-comedy *Catacomb Crawlers*) where deadfall traps, animated skeletons, and shambling horrors await the decker who carelessly rifles through the executive datastores down there.

The studio complex's security cameras feed images through the hundreds of mirrors in the Hall of Madness from *Reflections*, and the slave subsystem that coordinates the simsynths used in post-production is accessed through a Rube Goldberg pipe organ from *Phantom of the Opera Meets Godzilla*.

That's the way to "map" a sculpted system—not with lines and boxes, but with scribbled notes or just a vivid and slightly askew imagination and a fun metaphor.

WORLDS OF THE MATRIX

[Logging on to the Mitsuhama Pagoda

That week the Pagoda SAN was over in LTG-8206. I ran in a satlink from out in the hills south of Rainier. Good shot south to the geosynch comsats from there. I had a sensitive decephon prog I'd got from one of Geyser's pet coders, good on the satellite vendor's security, so that wasn't a big deal. I swapped it for my normal spoof code before I hit the Seattle RTC.

Seattle telecomm was the usual pushover. I didn't really start feeling pressure 'til I locked onto the Mitsuhama SAN address.

The sculpture kicks in as you trigger the logon interrupts. One tic, I'm swooping through the gridlines, all UMS-drek on the grid y'know. The next, I'm walking along a ramped-up road toward a Japanese castle. Those carrying chairs y'see in the chanbara sims are going by, little Japanese guys in diapers hauling them. Folk—most of 'em probably sararlman user icons—are walking in and outta the castle gates. I hear a clack-clack-clack and a guy runs by with a box on a pole, yelling something.

WORLDS OF THE MATRIX

Everyone gets outta his way, and my sensors ID it as a priority-access data packet accessing the SAN.

Now it's my turn. I don't even think of trying my own reality filter—house-to-house in a desert war don't match with samurai-land, s'right? As it is, my MPCP stutters and my timers have to cycle slower so I stay synched to the commlink, so I know my icon is being dragged deeper into Mitsunama's reality.

—go with the flow and run up my deception prog as the guardian icon of the access routines steps in front of me and halas up a hand. My log-on op went smooth as silk—I was in a samurai robe myself, and by the look and feel, my deck was telling the SAN that I was some corp-exec type. It bowed way low and the gate swung open.

Inside, the main fortress reared up in the distance—s'funny you can't see it from outside the first gate, but inside, it's the biggest thing on the horizon. A main road ran towards it, but I wasn't going that way today. I looked around, trying to find what I needed by rifling through the index code for the subhost I'd accessed. My browse prog finished interrogating the network's interprocessing addresses, and a side road—hadn't been there a second ago—branched off through a mess of farmers working in fields full a water. Office workers, singing some kinda work song. Sounded a lot like the Mitsuhama corp anthem ya get on their cable-access station ID spots.

I walked past the farmers and saw some kinda temple, lotsa people coming and going. If my browse prog had it right, this was the access point to the subsystem for Fuchi Mea Systems where the data I was after was located. I joined a bunch of pilgrims—I think they were e-mail packets from another division—and tried to blend in, but a tough looking pair of monk-warriors headed my way. Oh well, too much to hope for, getting all the way in without some kinda argument from the local ice.)+ -----

—X Register (20.08:39/02- 12-50)

[SIX-GUN FILEHANDLERS

I was inside the desk clerk logs for the Nikko Downtown. They hadn't cleared them yet, but the records for March were due to consolidate into their Tokyo headquarters tonight, so if I didn't track down the data I was getting paid to find here, I'd have to risk a run on a corporate HQ computer that would make this regional net look like a pushover.

Biggest hotel chain in Japan, so their sculpture is right out of a Hollywood western. Go figure. I have an MPCP cooked with cowboy stuff—it's a popular sculpture motif—so I'd slipped it into my deck when I heard what Mr. Johnson wanted. I rode into town, accessed the index router and found myself in a saloon knocking back some really toxic booze and talking to the bar-keep about folks passing through. Browse finally figured out that the phone logs were in the telegraph office. Before I moseyed on over there, I had to deal with a barroom brawl—I think the two tough guys were killer IC progs. I had to relocate the piano play-

er because that's where the trace IC was slashed. I'll give the sculptor points for a sense of humor—the relocate iconography translated into picking the icon up and slamming its head into the guts of an authentic player piano.

When I punched up my firecrackers I found myself walking among the railroad tracks, busier than any nineteenth-century train yard ever was, as large-frame data packets thundered past, looking like old steam locomotives. Spooled data bellowed and mooed in the cattle pens by the roadbed. I wished then that Nikko couldn't afford such good sculptors—they'd included an olfactory track.

I needed the secure phone logs from the executive suites: The ones hotels aren't supposed to maintain, showing comm-codes accessed, time stamps, and that kind of thing. I had no need to know, so Mr. Johnson hadn't told me, but I was willing to bet that the corp footing my bill suspected one of their sales managers was talking to people he shouldn't be. All I knew for certain was that I was supposed to spool a copy of the logs for a particular week and then wipe the data for the whole month.

I knew I was in trouble when I ran an Analyze icon operation on the telegraph office and a pile of papers blew away, revealing a heavy safe. A second Analyze icon op gave me a clue I didn't want to look on the files calling for this slave, running the subsystem up a couple of steps in processing power. Scramble IC wrapped around the contents of that safe, rigged to wipe it if I blew the operation. I could hear the tick of a data bomb inside it ready to blow if I succeeded.

I pulled out a big drill, muscle-powered to fit the metaphor, and tried working my way into the filespace to defuse the bomb. The bit kept slipping, so I knew the CPU was cranking the flags indicating probable intrusion higher and higher. That concern turned into an immediate threat when a big icon in a serge suit, with a scatter gun in its hands and a tin star on its chest, kicked open the door and took a shot at me. I was an unhappy cowpoke as I pulled a stick of dynamite out of my pocket—a decrypt prog to match the safe motif of the scramble IC. I ducked behind the desk, avoiding another blast from the shotgun, and lit the fuse, triggering the DINAB on the decrypt. I tossed it at the safe as I pulled my six-gun and plugged the sheriff IC. It fell as the safe blew open and I decided the drek with it and grabbed the satchel of telegraph forms out of the safe. The resulting blast as the data bomb blew sent me sailing out of the telegraph office.

I started stuffing the papers into my saddlebags, triggering the download process, when I heard jingling spurs coming down the street. He was dressed in black, two-gun rig riding low on his hips. I scanned him—yup, a hired gun indeed, a cowdecker. I stepped away from my horse—the telegraph flimsies still fluttering on their own from satchel to saddlebag—and we faced off.

Overdone sense of drama on some programmer's part. It was after 0200 PST, but somewhere a clock began striking noon. We both went for our guns on the last stroke of the bell.)<<<<<

—Mirrorman (19:02:42/04-02-56)

[LOADING FOR BEAR

The Azzie corpheat were leaning hard on Cement Bear's tribe in the Barrens, and they were short on weaponry to fight back. I owed Bear a debt after the way he'd patched me up last year, and I thought it'd be poetic justice to even the odds a little at Aztechnology's expense.

I hit the Azzie PLTG through a San Diego sales LAN. As the office decor faded into the Awakened jungles of the Yucatán something paced me through the trees—spots, teeth, claws, jaguar motif. I flipped out a relocate program, which turned into some kind of deer. The IC took off after it, maybe trapped, maybe just sculpted to scare the drek out of gullible deckers.

Flocks of brilliantly plumed parrots flapped along the data streams. I sidestepped a big fraggin' serpent that hissed a warning and scanned the squawking icons until I spotted an inventory transaction heading for the weapons production plant up here in Seattle. I followed it to a SAN off the private AZT grid. One of those darn pyramid temples, surprise surprise.

The IC guarding the stairs to the top of the pyramid looked nasty. You can tell a little about the IC on these sculpted Azzie systems. Simple cotton padding for armor says it's pretty mid-tech. If it's dressed in jaguar skins or maybe eagle headdress, be as still as you can. IC that dresses like the top-ranked Aztec warrior castes, the Eagle and Jaguar knights, is usually dark gray or worse.

I reached the top of the temple pyramid, where a giant mirror of glistening obsidian gave off a dense cloud of smoke—I think it was an SPU handling addressing redirects, since I ended up in front of it as I started probing the software, looking for the controls on a prodder for the Cement Bear.

An image swam into view in the mirror and firmed up as I stepped through the obsidian and into a goldsmith's. With flint and obsidian tools, a line of careful artisans worked gold into machined parts, and the parts into solid gold carbines. Cute image. I'd chipped a gunsmith skillsoft before I jacked in, so I could make the adjustments I wanted. I found the craftsmen who produced the sear assemblies, and guided their hands in a new pattern, then worked up the tolerance on the bolt, and half-a-dozen other adjustments. Instead of the Alloy sporting model the factory this slave node controlled was now turning out the mil-spec AK model it's based on. I needed 100 of the weapons—about an hour's production. I killed a few seconds writing a nicely paid order to the sales database. A pictographic scroll formed under my hands as I finished coding the update, and a courier, wearing the emblems of a minor court official, ran up to carry it off as I finished. Hoping I would get all 100 rifles before the host caught on, I settled into a wait state and hoped I'd get through the null ops OK.)<<<<<

—Runs-In-Circles (17:32:54/05-09-56)

DECKERS

A decker's got to want to deck. He's got to have a love of something besides the numbers.

—Lucifer, decker

If you jack in at the office and juggle databases, you're a wriggling little user. If you get into what makes the pretty icons work, you might become a programmer, a much higher form of life. But unless you punch deck till your fingers bleed and your neurons melt, unless you bet your brain to get a microsecond's advantage over IC as black as hell, you're no decker.

We can define the numbers that define the decker. In this section, we do just that. But only the players can provide the attitude that turns a technonerd with a megayen worth of computing gear into a decker.

natri
BERGTING 95

ATTRIBUTES

The Mental Attributes rule, as far as most deckers are concerned. After all, Intelligence is crucial to the Hacking Pool. While Body may be important when resisting damage from black IC, the new biofeedback ICCM technology (see **Cyberdecks**, p. 86) lets deckers disregard Body and depend on their Willpower. Enough Quickness for a decent Reaction value is useful, but frankly, most hot deckers depend on their decks, not their meat, for speed. The only Mental Attribute not essential to decking is Charisma. Some deckers say this reflects and continues a time-honored tradition (and stereotype) of brilliant nerds with no time for social trivia like empathy, relationships, self-awareness and that kind of drek.

SKILLS

The Computer Skill is ESSENTIAL for deckers. Its Software Concentration includes the Decking Specialization, but beginning deckers will suffer if they increase skill in Decking at the expense of programming ability.

The maximum rating of the programs that characters can design equals the rating of their Computer (or Software, or Matrix Programming) Skill. The ratings of character-designed MPCP and frame cores may not exceed the character's Computer (or Software, or Matrix Programming) Skill multiplied by 1.5.

The Hardware Concentration is not as important as the aforementioned concentrations. Computer B/R is the skill for building decks. The Hardware Skill comes into play if the decker is designing basic components, rather than bashing stock parts into his deck.

The Etiquette (Matrix) Skill governs searches for equipment, software sources, local access to Shadowlands, and other goods and services. This skill also keeps the decker current on who the major players are in cyberspace and lets him pick up the latest rumors in the global gossip of the Matrix. Gamemasters should not overlook this skill. Use it to determine whether a decker gets hot goss on who's got goodies that might be useful to him (great new software, contacts, paydata info) and more besides.

THE PERSONA

The persona, the decker's online icon, is defined by the MPCP and BEMS ratings of the deck (see **Deck Ratings**, p. 16, in **Matrix 2.0**), and by the deck's special options, such as Response Increase. The final measure of the persona's processing power is the utility programs loaded into the deck during a run.

The following two sections, **Cyberdecks** and **Programs**, provide rules for designing and constructing the hardware and software that make up the cyberdeck, and the persona it generates. This section discusses the basics of what the programs do, and the decisions the decker must make when he is loading his deck.

THE MPCP

The master persona control program (MPCP) is the operating system of the cyberdeck. It runs on a dedicated processing chip and is the central component of the cyberdeck. The MPCP is the heart of the circuitry that supports the other persona programs, like the motherboard in a regular microcomputer.

In addition to performing its technical functions, the MPCP defines the persona's appearance. On a legitimate terminal, it carries the so-called Matrix signature. Every time a user logs on to a system, edits a file, touches a control system, a logging function in the MPCP writes a record of the user's signature, timestamp, and a code indicating what the user did into the system.

Cyberdecks, almost by definition, do not possess Matrix signatures. Deckers illegally "stealth" their MPCPs and fit them with illegal masking chips. But each MPCP is subtly different from every other, and these differences give each MPCP a distinctive appearance in Matrix iconography. Some deckers are paranoid enough to continuously tinker with their icon, radically changing its appearance on a regular basis. Others accept the inevitable and maintain the same look rather than endanger their precious "edge" by undermining their sense of identity in the nets.

Characters rarely use the MPCP in tests. The two principal exceptions are tests measuring the stability of the Icon program on a sculpted host (see **Effects of Sculpted Systems and Reality Filters**, p. 69, in **Mapping Matrices**) and when the deck itself is under attack by gray or black IC (see **Intrusion Countermeasures**, p. 38).

All the other programs on the deck, both persona programs and utilities, execute under the MPCP's control. Therefore, the MPCP Rating determines the maximum ratings for these subordinate programs. The total ratings of the four Persona programs cannot exceed the MPCP Rating x 3. No utility can have a rating greater than the deck's MPCP. (See **Deck Ratings**, p. 16 in **Matrix 2.0**, for more information.)

PERSONA PROGRAMS

The latest piece of Matrix slang for persona attributes is "BEMS," for Bod, Evasion, Masking, and Sensor. These four qualities measure the effectiveness of the persona in cyberspace.

Bod

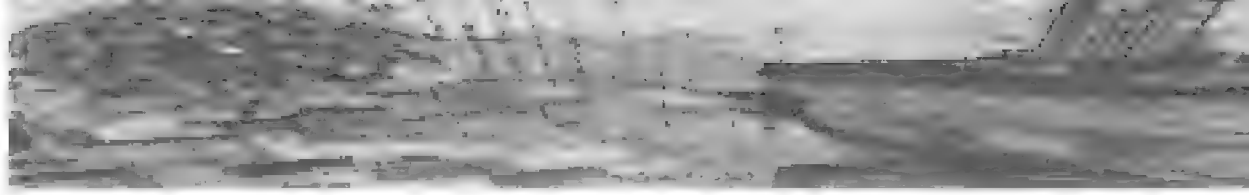
Bod measures the stability of the character's Icon—its resistance to error, logic attacks, and other cybernetic attacks. A high Bod Rating is important for deckers who like to solve problems via cybercombat.

Evasion

Evasion measures the agility of the Icon—its ability to maneuver in cybercombat and escape the attentions of trace IC. Evasion is not generally installed on most cyberterminals, unless they are designed specifically for cybercombat. Not the kind of feature you find on an office worker's desktop.

Masking

Masking measures the ability of an illegal Icon to avoid detection. This attribute is especially important when resisting the system Security Tests that oppose the decker every time he makes a System Test. Typically, Masking programs are not



installed on legal cyberterminals. Investing in excellent Masking is arguably the sign of a decker who knows what he's doing.

Sensor

The Sensor attribute controls the icon's perception of cyberspace and measures its ability to process data. The attribute may be used for ad hoc Sensor (System Security Value) Tests to notice changes in the host computer, such as alert states, IC activations, and so on.

OPTIONAL RULE: DECK MODES

Under the optional Deck Modes rule, cyberdecks are in one of five modes at all times—default mode, bod mode, evasion mode, masking mode, and sensor mode. Each mode has distinct effects and confers specific bonuses and limitations. Switching between modes requires a Complex Action, and decks may be in only one mode at a time.

When increasing or decreasing values under the deck modes rule, round up all fractions.

Generally, substantial disadvantages counterbalance the advantages gained by using any deck mode. Throughput loss makes this especially true for the evasion mode. For this reason, deckers may wish to reserve deck-mode switches for special circumstances. For example, a decker might choose to switch to evasion mode when he identifies the presence of trace IC in a system gone to passive alert.

DEFAULT MODE

In the default mode, all deck ratings remain at their base values.

BOD MODE

In bod mode, the deck's MPCP allocates resources to resist damage. The Bod attribute increases 50 percent. The Evasion, Masking, and Sensor attributes are reduced by 50 percent each.

The deck's I/O bandwidth is reduced by 50 percent as well. That is, if the decker has 100 Mp of total bandwidth allocated, he only gets 50 Mp of throughput (throughput is the actual speed of data over commline). See **Cyberdecks**, p. 90, for bandwidth rules.

EVASION MODE

Typically, deckers use evasion mode to avoid trace IC and enhance the combat maneuvers of a deck. Evasion mode increases a deck's Evasion attribute by 50 percent. Bod, Masking, and Sensor are reduced by 50 percent, as is the deck's bandwidth throughput.

MASKING MODE

Masking mode increases the deck's Masking attribute by 50 percent. The deck's Bod, Evasion, and Sensor attributes are reduced by 50 percent. Bandwidth throughput is unaffected.

SENSOR MODE

Sensor mode improves the persona's ability to detect changes in the host environment, as well as the ability to counter combat maneuvers. Sensor is increased by 50 percent. Bod, Evasion, and Masking attributes are reduced by 50 percent. Bandwidth throughput is unaffected.

DECKERS AND TASKS

Tasks follow the same pattern whether they involve hardware or software. (See **Cyberdecks**, p. 81, and **Programs**, p. 94, for details on designing and constructing hardware and software.)

All tasks require a base time, usually measured in days. Most important, every task requires a Success Test (specified in the description of the task) to develop the basic design of the program, circuit, or whatever. The base time divided by the number of successes from the test equals the number of days in the task period. The task period is the actual amount of time it takes the decker to finish the task.

If the Success Test fails, the gamemaster rolls 2D6 and divides the base time by the result. Round fractions up in this instance. The result equals the number of days of work that the character must put in on the task before discovering that the design is irretrievably flawed and that he must begin again. Task bonuses, defined below, apply to this work.

The gamemaster should make these Success Tests secretly, so that only he knows the actual task period and the success or failure of the attempt. Alternatively, the gamemaster may have the players make a number of Success Tests in advance and use the results when the player attempts tasks.

TASK BONUSES

Each task requires minimum tools and resources. Without these required tools, the job cannot be done at all. With them, one day of work, defined as 10 hours of uninterrupted labor at the job, reduces the task period by one day. Gamemasters should resist the blandishments of players who claim their deckers can put in a 15-hour day thanks to excessive intake of caffeine and the latest meditational exercises.

In some cases, superior resources may grant a bonus to the work rate. A +1 task bonus means that one day's work reduces the task period by 2 days. A +2 task bonus reduces the task period by 3 days for a day of work, and so on. Rules for specific tasks, presented in subsequent sections, note which tasks may be shortened with task bonuses.

FINISHING TASKS

Characters may complete tasks in parts, rather than in single unbroken efforts. For example, a character attempting a task with a 20-day task period may perform 5 days of work, go off on an adventure, do another 10 days of work, work on another task and then do 5 more days of work to complete the task.

HEALTH AND TASKS

Characters suffering from Light wounds may work at tasks unimpeded. Characters suffering from Moderate wounds may perform tasks, but they have only half their normal productivity.

A character with a Moderate wound would have to work 7 days to accomplish the 1 standard day of work on a task.

Characters with Serious wounds cannot work on tasks at all. As for dead characters—well, we appreciate their spirit, but they would really take the day off.

OPTIONAL RULE: SOTA

Tech doesn't stand still. The deck that cracked a mainframe wide open last month might not even get past the SAN today. To stay on the edge, a decker has to stay current with the "state of the art," the SOTA.

When using the optional SOTA rule, the gamemaster should use Z36 and consult the SOTA Table at the end of each adventure

SOTA TABLE

2D6 Result	Result
2	Advance SOTA for MPCP and persona programs
3–5	Advance SOTA for persona programs
6–8	Nothing changes; must be a slow month in R&D
9–11	Advance SOTA for MPCP
12	Advance SOTA for utilities

SOTA FACTOR

When the SOTA changes, deckers must upgrade their programs or fall behind. Each persona program, MPCP, and utility has a SOTA Factor. See **Maintenance Costs** for more on the ratings of the various programs. Each deck has a SOTA Factor. However, the deck's SOTA Factor is the highest SOTA Factor of any program in the deck. For example, a deck with a MPCP of 6 and a persona program of 8 has a SOTA Factor of 8.

The SOTA Factor is the number of points of upgrades a decker must buy to keep his programs current.

Selena has Computer-6 and an MPCP-6/6/6/6/6 deck. She has utility ratings totaling 86 points, but her source code accounts for only 49 points of that sum.

If the MPCP advances, her SOTA Factor is 6 x 2, or 16.

If her persona programs advance, the SOTA Factor is 24.

If both the MPCP and persona programs advance, her SOTA Factor is 16 (MPCP x 2), plus 24 (sum of BEMS ratings), for 40.

If the utilities advance, take 49 ÷ 2, rounded to 24 (utilities with source code), plus 37 (other utilities), for a total of 61.

LIFESTYLE AND SOTA

A decker who maintains a High or Luxury lifestyle receives "automatic" maintenance for his gear and programs. High lifestyle reduces the SOTA Factor by 25 percent. Luxury lifestyle by 33 percent. Round fractions down. Middle lifestyle or lower does not offer this SOTA advantage.

MAINTENANCE COSTS

Deckers can pay for their SOTA maintenance costs with skill, money, or Karma Points.

First, the decker makes a Computer (MPCP Rating) Test. If maintaining the MPCP or persona programs, characters may use the Hardware Concentration or Isometric Tech Specialization facilities. The Software Construction or Matrix Programming Specialization may be substituted. For every success, reduce the SOTA Factor by the rating of the skill used for the test.

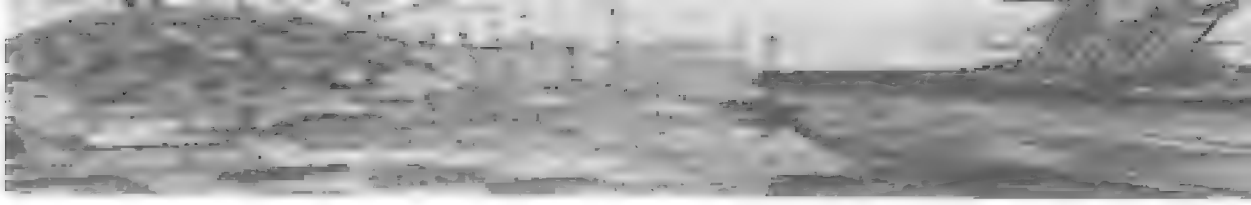
Remaining points in the SOTA Factor may be paid off with money at 500 nuyen per point. Alternatively, a decker can spend Good Karma to reduce the SOTA Factor. Each point of Good Karma reduces the SOTA Factor by the rating of the decker's Computer Skill or the relevant construction or specialization.

However the decker chooses to pay off the SOTA Factor, he must pay before the next sprint after the specified months. The decker also may pay off only part of the SOTA Factor and decide what components to leave out of the upgrade. Any programs not upgraded at this time suffer the specified penalties.

Selena must pay off a SOTA Factor of 61 to maintain her utility programs. Her deck has an MPCP Rating 8, so she makes a Computer (8) Test. She achieves 2 successes, so she reduces the SOTA Factor by 6 x 2, 12 points. Her SOTA Factor is now 49.

She spends 4 Karma Points to reduce it by another 24 points, to 25. But now there's a problem. Selena only has 10,000 nuyen to spare for the SOTA. That means she'll be able to pay off all but 5 points of the SOTA Factor.

Selena may leave 5 points worth of object-only utilities or 8 points of source code utilities unpaid. She has a Cloak-5 (no source code) she hasn't used much lately, and so drops it from the SOTA Factor. That program drops to Cloak-4.



DECKER

"They say you have to love more than the numbers and the icons to be a decker. Well, I'm here to tell you that's nothing but the truth. People are born with the natural capacity to do all sorts of things: some are natural athletes, some become accountants, some cast magic. Then there are the truly gifted and truly lucky—those who are born to run the Matrix.

"I was using my talent before I could walk, but I was smart enough to know I couldn't rely on skill alone to survive in the grid. I've clocked thousands of hours worth of studying and practice—and yeah, I count every run as practice—to maintain the SOTA and keep up with what's happening tech-wise and around the world, even what innovations corps and other organizations come up with in using personnel versus programs. I might never reach the level of the legends in the Nexus, but I'm going to keep trying until I make it or die—I have no choice, it's what I do."

Commentary: A rare individual in this era of specialization, this decker leaves his ego at the door long enough to recognize that others like him exist—and a large number of them are on the other side of the deck. Though he only feels truly alive in the Matrix, he's unwilling to stake his life on his talent alone. He puts significant effort into being the best, because he wants to live to deck another day—though he hopes he'll become the ghost in the machine when he dies.

Attributes

Body: 2
Quickness: 3
Strength: 3
Charisma: 1
Intelligence: 6 (8)
Willpower: 5
Essence: 4
Reaction: 4 (7 in Matrix)

Initiative: 4 + 1D6 (Physical), 7 + 3D6 (Matrix)

Skills

Bike: 5
Computer: 6
Computer B/R: 6
Etiquette (Street): 4
Etiquette (Matrix): 5
Firearms: 4

Dice Pools

Combat: 8
Hacking: 5
Task: 2

Contacts

Choose (2) Contacts. Fixer and Deckmeister recommended.

Cyberware

Datajack
Headware Memory (30 Mp)
Encephalon-3 (+2 Intelligence, 2D Task Pool)

Gear

Cyberdeck (531,469¥ package price)
MPCP 8/6/6/6/5
Hot ASIST
Response Increase-2
Hardening-4
Active Memory: 1,000 Mp
Storage Memory: 2,000 Mp
I/O Speed: 360 MePS
ICCM Biofeedback Filter
Programs (241,000¥)
Analyze-4 (48 Mp)
Armor-6 (108 Mp)
Attack-6M (108 Mp)
Attack-6D (180 Mp)
Browse-6 (36 Mp)
Camo-4 (48 Mp)
Commlink-5 (25 Mp)
Defuse-4 (32 Mp)
Deception-6 (72 Mp)
Decrypt-6 (36 Mp)
Medic-6 (144 Mp)
Read/Write-5 (50 Mp)
Relocate-5 (50 Mp)
Scanner-4 (48 Mp)
Shield-4 (64 Mp)
Sleaze-6 (108 Mp)
Spoof-4 (48 Mp)
Desktop Personal Computer (200 Mp)
1-year DocWagon™ Contract (Platinum)
Microtronics Kit
Middle Lifestyle (1 year prepaid)
Programming Shop
Ruger Super Warhawk (with 10 rounds standard ammunition)
Yamaha Rapier

Starting Cash: 11,818¥

ELVEN DECKER

"Ya know, folks just assume us pointy-eared types all got attitudes that just won't quit. Me, ah'm more interested in hearing what y'all got in mind fer me to do than strikin' some kinda pose. Ah wouldn't claim to be able ta fake or leave my deckin' work, but ah sure don't have to live or die it. Allus better to live to fight another day, as the ancients were fond o' sayin'.

"Don't mistake my laid-back nature for laziness or poor performance record, though. Ah kin slice through black IC pretty as a picture and leave 'em wantin' more. The best of it is, nobody ever knows ah was there—ya won't be fussing with tracers or havin' to clean up my remains, and that's a promise ah kin keep. Let's talk specifics on your job—but not right here. Let's mosey over to that little cafe and have us sumpin' cool to drink while you explain the point o' my new mission."

Commentary: Just when you think you've got this southern boy pegged, he'll drawl out a question that'll make you change your mind. Apparently less intense and hyperactive than the deckers you usually hire, he's equally competent—and you can hardly contain your curiosity about his reality filter. According to your contacts, however, he's not bragging about his skill. Unless this guy's reputation is a complete fiction (which means he's buying off a lot of corporate stooges), he's almost never failed to meet his goal—and when he did, it was a double-cross he couldn't salvage.

Attributes
- Body: 2
- Quickness: 3
- Strength: 2
- Charisma: 3
- Intelligence: 6
- Willpower: 4
- Essence: 5.5
- Reaction: 4 (6 in Matrix)

Initiative: 4 + 1D6 (Physical), 6 + 2D6 (Matrix)

Skills
- Bike: 3
- Computer: 6
- Computer B/R: 5
- Etiquette (Matrix): 4
- Etiquette (Street): 3
- Firearms: 3

Dice Pools
- Combat: 6
- Hacking: 4

Cyberware
- Datajack
- Headware Memory (30 Mp)

Contacts
- Choose (2) Contacts. Fixer and Deckmeister recommended.

Gear

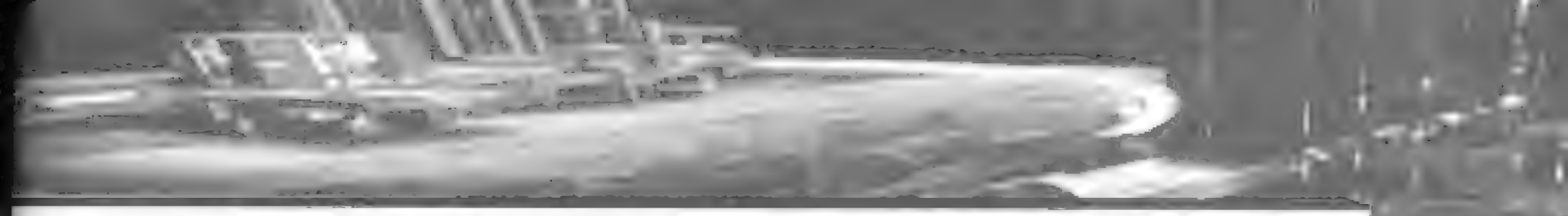
Cyberdeck (208,641¥ package price)
- MPCP-6/5/4/5/4
- Hot ASIST
- Response Increase-1
- Hardening-4
- Active Memory: 500 Mp
- Storage Memory: 1,000 Mp
- I/O Speed: 240 MePS

Programs: (127,400¥)
- Analyze-4 (48 Mp)
- Armor-4 (48 Mp)
- Attack-6S (144 Mp)
- Browse-4 (16 Mp)
- Commlink-4 (16 Mp)
- Deception-6 (72 Mp)
- Decrypt-5 (25 Mp)
- Read/Write-4 (32 Mp)
- Relocate-4 (32 Mp)
- Scanner-4 (48 Mp)
- Sleaze-6 (108 Mp)
- Spoof-4 (48 Mp)

Desktop Personal Computer (200 Mp)
1-year DocWagon™ Contract (Basic)
Hellini-Med Breather Mask
Middle Lifestyle (3 months prepaid)
Programming Shop
Ruger Super Warhawk (with 10 rounds standard ammunition)
Yamaha Rapier

Starting Cash: 14,028¥

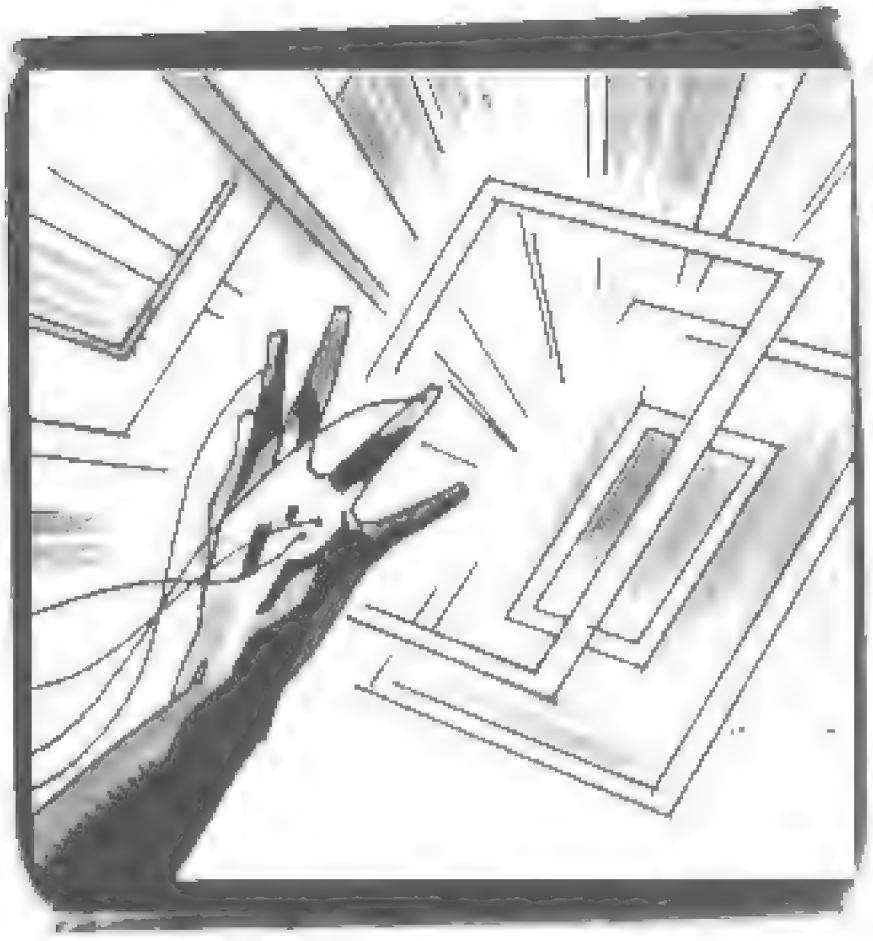
Allergies: Mildly allergic to pollutants



CYBERDECKS

Well, what the drek did you expect? You've got the fraggin' thing in backwards!

–Joe Wisdom, deckmeister



The key to the decker's art, the cyberdeck is an extremely powerful microcomputer with a highly specialized instruction set. Its processing power is dedicated to implementing the ASIST interface that converts the decker's neural impulses into the programming instructions that bend the Matrix to his will.

This section provides rules for constructing and buying cyberdecks. In Matrix 2.0, deck buyers are not restricted to the "off-the-peg" decks of the original **SR** rules. Now, buyers may purchase modular units that allow a decker to select the components and capabilities of the deck. Of course, such decks cost big nuyen, and where's the pride in it?

The section is divided into three main parts: **Constructing Decks**, **Tools and Parts**, and various subsections on the components of a deck. **Constructing Decks** provides a general explanation of deck construction. **Tools and Parts** provides information on the tools and parts needed to build decks. The component subsections provide information on each component and rules for installing or assembling the component.

CONSTRUCTING DECKS

All cyberdecks contain certain components, such as an MPCP, persona programs, an ASIST interface, active memory, and storage memory. Without these components, a deck simply will not work. The components are assembled in a series of tasks that may be performed by the decker himself or a cyberdeck technician.

I/O speed is so vital that it is almost mandatory, but theoretically a decker can make a run without it if no significant data transfers are involved. All other components, no matter how useful they may be, are optional.

TASK DESCRIPTIONS

All of the component entries in this section contain task descriptions. These descriptions provide the ratings, tests, and other game values involved in producing or upgrading that particular component. Tasks are divided into three types: Software Tasks, Cook Tasks, and Installation Tasks.

Software Task

If a component requires a program, the program's effective rating and size multiplier are listed in the Software Task heading. These values are used in the programming task (see **Programs**, p. 100).

To construct a cyberdeck, a decker must obtain a custom-programmed or off-the-shelf object copy of the software before he can do any work on the component's hardware.

Cook Task

Software such as MPCPs, persona programs, and support code for programs such as Response Increase are all permanently written onto "firmware" chips, also known as optical-code chips (OCCs). All other components that require software use OCCs as well.

Characters may purchase pre-programmed OCCs from an outside source—one they literally trust with their lives—or they may encode software onto OCCs themselves by performing Cook Tasks.

All Cook Tasks require the use of an optical-chip encoder. Encoders are described in **Tools and Parts**. Cook Tasks have base times and cook times as well, which are described in each component's Cook Task description. Additionally, every Cook Task requires a Computer B/R Test. The target number for the test is supplied in the component's Cook Task description.

OCCs and components that use OCCs may not be installed until the chips have been created with a Cook Task.

Installation Task

Once a decker has cooked or purchased any required OCCs for a component, he may buy any necessary parts and install the component. Each component's Installation Task description provides the base time and Success Test needed to complete the component's installation.

The prices of circuitry and other parts required for installation are described in **Tools and Parts**.

CRANIAL CYBERDECKS

Characters must use cranial deck parts, not standard ones, when constructing cranial decks, or C^2 decks. The Implant specialization of Computer Skill is the appropriate skill for all Cook and Installation tasks made when constructing C^2 decks. Apply a -2 modifier to all target numbers if using Computer B/R Skill for these tests instead.

C^2 decks also require the use of cybernetic as well as microtronic tools. For example, if the task description for a component calls for a Microtronics Shop, the task would require a Cybernetics Shop as well if the decker is constructing a C^2 deck.

See pp. 54–59, **SRII**, for more information on cranial cyberdecks.

TOOLS AND PARTS

Once a character purchases tools, he may use them for various tasks. For example, a decker may use an optical-chip encoder to cook any number of OCCs—he does not need to purchase a new one to make new chips.

However, parts are consumed when the task is performed. Once the job is done, the parts have been turned into a piece of the cyberdeck. Characters must purchase additional parts to perform additional tasks.

TOOLS

Microtronics tools are required for all cyberdeck construction, both external and cybernetic. These tools come in kits, shops and facilities. A kit is a portable supply of tools for performing basic work. A shop contains more tools and can be moved only with a large van or small truck. A facility contains bulky, heavy machinery and is immobile.

Tasks that require a small tool unit, such as a kit, may be performed with any larger unit, such as a shop or facility. In fact, using a larger tool unit than required confers a Task Bonus, as illustrated on the Tool Unit Table. Kits may not be used for tasks that require shops and facilities; shops are not adequate for tasks that require facilities.

TOOL UNIT TABLE

Task Requires	Appropriate Tool Units	Task Bonus
Kit	Kit	None
	Shop	+1
	Facility	+3
Shop	Shop	None
	Facility	+1
Facility	Facility	None

Many tasks require a personal computer with a minimum memory size. This same computer can, of course, be used to write the programs for the software elements of a component. The price for a desktop unit is provided in the Tool Prices Table. (See p. 259, **SRII**, for prices of more compact computers.)

Optical-chip encoders use a quantum process to program OCCs. The process breaks down and reconstructs the crystalline lattice of the "raw" chip. The encoder's rating is added to the Computer B/R Skill a character uses for a Cook Task. The better encoders also provide a Task Bonus. Encoders weigh a few kilograms and are about the size of a shoebox.

Once cooked, OCCs cannot be reprogrammed. Upgrading and repairing OCCs requires a whole new Cook Task.

TOOL PRICES TABLE

Tool	Cost	Availability	Street Index
Cybernetics Kit	1,500¥	5/48 hrs	2
Cybernetics Shop	15,000¥	8/72 hrs	3
Cybernetics Facility	300,000¥	14/7 days	4
Microtronics Kit	1,500¥	5/48 hrs	2
Microtronics Shop	15,000¥	8/72 hrs	3
Microtronics Facility	300,000¥	14/7 days	4
Personal Computer	20¥ per Mp of memory	Always	.75

Optical-Chip Encoders	Rating	Task Bonus	Cost	Availability	Street Index
Sony Encoder I	0	0	1,200¥	4/24 hrs	1
Fuchi OCE/500	1	0	2,700¥	6/24 hrs	1
Sony Encoder II	2	+1	6,000¥	8/72 hrs	1.5
Hitachi RM-AX	3	+2	9,500¥	10/7 days	2

PARTS

Each component's task description specifies any parts needed for each component. Part prices appear in the Part Prices Table. Task descriptions provide any task-related cost multipliers as well. For example, Hardening a deck requires redundant data-transport circuits, and so the DTC cost is multiplied by the Hardening Rating, squared.

Chips are rated in price per megapulse. The component task descriptions describe required chip ratings as the type of chips at the size of the relevant program. For example, an OCC would be shown as "OCC @ program size," at 20 nuyen per Mp of program size.

Circuitry is measured in Rating Points and priced per point. For example, an entry in a task description such as "PLC @ MPCP Rating" would mean buying processor-logic circuitry with the same rating as the MPCP, at 25 nuyen per point.

The component task descriptions list any required specialized parts and their prices as well. Cranial components are required for C^2 decks.

All parts are readily available. Even cranial components are easily available through cyberware markets. Non-cranial components are always available and have Street Indexes of 1. Cranial components have Availabilities of 4/72 hours and Street Indexes of 1.5.

PART PRICES TABLE

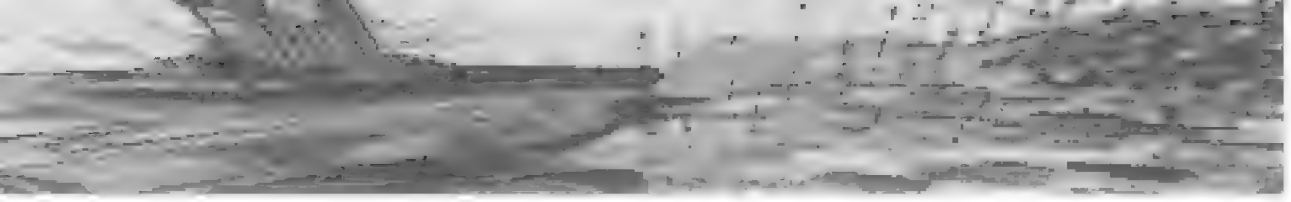
PART	COST
Chips	
Optical Code Chip (OCC)	20¥ per Mp
Optical Memory Chip (OMC)	5¥ per Mp
Cranial OCC	200¥ per Mp
Cranial OMC	50¥ per Mp
Circuitry	
Processor Logic Circuitry (PLC)	25¥ x rating
Data Transport Circuitry (DTC)	10¥ x rating
Cranial PLC	250¥ x rating
Cranial DTC	100¥ x rating

UPGRADES

Upgrades represent improvements to existing components. The Software Tasks for upgrades are based on the difference between the component's old rating and its upgraded rating. Calculate the size of the upgraded program and subtract the size of the old program to determine the amount of work involved in the task. Program upgrades are discussed in more detail in **Programs**, p. 107.

Characters must perform the Cook and Installation tasks for the component from scratch, using the new software rating and size.

For example, a decker has an MPCP-6 deck with Hardening-4. The Hardening software is 144 Mp in size. If the decker upgrades the Hardening to 5, the new size is 180 Mp—a 36 Mp upgrade. After performing programming equivalent to a 36 Mp program, the decker performs the Cook and Installation tasks. These are based solely on MPCP-6 and Hardening-5, as if the component were being built from scratch.



OPTIONAL RULE: SALVAGE

Gamemasters may allow deckers to "salvage" 50 percent of the value of parts they replace in upgrades. This represents income from selling outdated OCCs, old memory chips, reusing circuit logics, and so on.

MPCP

As noted in previous sections, no persona program on a deck may have a rating higher than the deck's MPCP rating. Additionally, the combined ratings of a deck's persona programs may not exceed the MPCP Rating multiplied by 3.

In addition, no utility may have a rating higher than the MPCP Rating. However, the MPCP Rating does not limit the number of utilities the deck may run at any single time. That limit is purely a function of the deck's active memory size and the size of the utilities (see below).

MPCP UPGRADES

Improvements in the holographic code links under Matrix 2.0 have eliminated the older, more rigorous requirements that controlled MPCP upgrades. Characters no longer need to upgrade persona programs to match new MPCP Ratings.

However, whenever a character upgrades his deck's MPCP, he also must upgrade components that have construction tasks that involve the MPCP. These components include the ASIST interface, the ICCM filter, and Response Increase. Until the decker upgrades these components to match the new MPCP Rating, he cannot run his deck with both the new MPCP and the old components. He may run the deck with the older, lower MPCP Rating and continue to use the components, or he may run with his new, higher MPCP rating but without the components.

REALITY FILTERS

Reality filters impose a metaphor on the Matrix chosen by the decker and programmed into his deck's MPCP. A decker who likes baseball can model an entire Matrix run on a hard-fought game. A decker with a taste for swashbuckling can swagger his way through the world of a cybernetic musketeer or duelist.

In practical terms, a reality filter acts as an additional level of Response Increase on the cyberdeck. It increases Reaction by 2 and adds +1D6 to Initiative. However, a reality filter also increases the MPCP's design rating by 2. This increase affects design size and all base times, target numbers, and so on, based on the MPCP's Rating, though the real size of the program is not increased. Reality filters also reduce MPCP Ratings by 1. As a result, deckers may have to reduce their persona programs to keep them within acceptable limits (see **MPCP**).

The decker may operate his deck without turning on the reality filter. In that case, he does not receive the Response Increase or the rating reduction.

Turning a reality filter on and off is a Free Action. However, until the beginning of the next Combat Turn after toggling the filter on or off, reduce the decker's current Initiative by half and apply a +2 modifier to all his target numbers.

MPCP ICONOGRAPHY

Instead of jamming the entire Matrix through reality filters, deckers also may adapt their icon's appearance, or iconography, to fit the metaphors they are likely to encounter on a sculpted system.

An MPCP program can be cooked with alterations to the iconography if the decker has the source code. The programming changes only take a few hours to write and do not require a test, but the Cook Task requires the standard task period and components.

The decker can then simply pop the new chip into the deck's motherboard—no Installation Task is required.

Deckers may maintain a library of MPCP chips, each designed to present an image that blends with a specific system iconography, and thus avoid the penalties for violating the metaphor of a sculpted system.

MPCP CONSTRUCTION

Software Task
- **Rating:** MPCP Rating (+2 for reality filters)
- **Multiplier:** 8

Cook Task
- **Time:** MPCP Rating x 3 days
- **Test:** Computer B/R (MPCP Rating) Test
- **Parts:** OCC @ program size
- **Tools:** Personal Computer (Memory: MPCP program size)
  Microtronics Shop
  Optical-Chip Encoder

Installation Task
- **Time:** MPCP Rating x 2 days
- **Test:** Computer B/R (MPCP Rating) Test
- **Parts:** PLC @ MPCP Rating^2
  DTC @ MPCP Rating^2
- **Tools:** Microtronics Shop

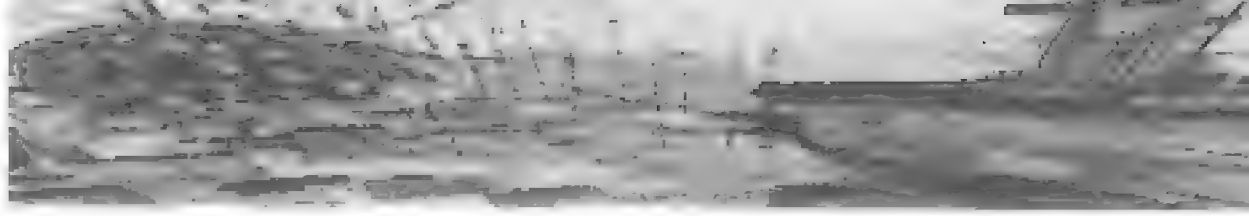
PERSONA PROGRAMS

Persona programs include Bod, Evasion, Masking, and Sensor programs. These function as "attributes" of the decker's persona. For further information on persona programs, see **Icons**, p. 14, and **Deck Ratings**, p. 16, in **Matrix 2.0**.

PERSONA CHIP CONSTRUCTION

Software Task
- **Rating:** Program Rating
- **Multiplier:** 3 (Bod and Evasion)
  2 (Masking and Sensor)

Cook Task
- **Time:** Program Rating x 3 days
- **Test:** Computer B/R (Program Rating) Test



Parts: OCC @ program size
Tools: Personal Computer (Memory: persona program size)
Microtronics Shop
Optical Chip Encoder

Installation Task
Time: Program Rating x 2 days
Test: Computer B/R (Program Rating) Test
Parts: PLC @ Program Rating²
DTC @ Program Rating²
Tools: Microtronics Kit

ACTIVE MEMORY

Active memory is the cyberdeck's "RAM," to use the old-tech term. Just as hackers in the twentieth century talked about having 64 meg of memory on their computers, a Sixth World decker refers to 100 Mp of active memory on his deck.

A deck's active memory limits the utility programs the deck can run and have ready for use by the persona at any one time. A deck with 100 Mp of active memory can run no more than 100 Mp of utilities at any one time.

(These limits are in addition to any limits imposed under the optional Icon bandwidth rule.)

ACTIVE MEMORY CONSTRUCTION

Software Task: None
Cook Task: None
Installation Task
Time: Memory Size ÷ 100 days (round up)
Test: Computer B/R (Memory Size ÷ 100, round up) Test
Parts: OMC @ memory size
PLC @ memory size ÷ 10, round up
Tools: Microtronics Kit

ASIST INTERFACE

The ASIST Interface component controls the simsense experience of cyberspace and the decker's DNI (direct neural interface) connection to the Matrix, as routed through the interpretative software coded into the MPCP. The interface also has a control program of its own to handle the data exchange.

This ain't no home sim entertainment unit. The typical signal strength on a full-bore cyberdeck is not too far below the brain-kicking current a wirehead gets from a BTL chip. That gives the decker the best interface to the Matrix, and when a deck is running at that intensity, it is sometimes called a "hot" deck.

However, a decker can deliberately reduce the intensity of the ASIST signal, down to about the level of legal simsense. This is called a "cool" deck. Cool decks can reduce the persona's speed in cyberspace, but black IC cannot inflict lethal damage over a cool interface. Lethal black IC acts as non-lethal black IC through a cool deck. Psychotropic black IC, however, works over both levels of interface.

A decker can install hot or cool ASIST circuitry. If he installs the hot circuit, he can selectively switch from hot to cool, or vice-versa, at will. However, switching interface circuitry while under attack by black IC requires the same tests as jacking out. A cool interface can only run cool. Either ASIST interface can be switched off entirely, which turns the deck into a "tortoise" (see **Tortoises**).

Whenever a decker upgrades his deck's MPCP, he must also upgrade the ASIST interface. Until he does so, the deck acts like a tortoise if he runs with the new, higher MPCP, but the interface works as designed if operated with the MPCP at the old value.

CONTROL INTERFACES

A hot deck can be run without any manual control surfaces. All commands are transmitted via DNI. This enables a decker to cool down the deck during a run, but acts as another level of Response Increase, adding 2 to Reaction and +1D6 to Initiative.

A deck equipped with a keyboard and a hot ASIST interface can be run hot, cool, or even tortoise-cold.

Running a deck cool, by using a keyboard and other manual controls to augment the ASIST interface, reduces a decker's Initiative by 1D6.

RAS OVERRIDE

ASIST circuitry includes a reticular-activation system override (RAS). The RAS override suppresses sensory signals from the decker's meat body, freeing him to concentrate fully on the simsense experience of the Matrix. The RAS override also louses up any physical coordination the decker has, so apply a +8 modifier to target numbers for any Physical Tests a decker must make while jacked in. In addition, concentrating on the physical world louses up a decker's Initiative badly (see **Cybercombat**, p. 120).

Disconnecting the RAS override dilutes the ASIST interface so badly that the cyberdeck acts like a "tortoise".

TORTOISES

Tortoises are cyberdecks without ASIST interfaces. They use VR goggles, holo display screens or even flatscreens, gloves, trackballs and other low-end tools to simulate the Matrix experience without a DNI connection. A deck without an RAS override is equally inferior. Characters can build tortoises easily and cheaply, because cost of the VR equipment is a trivial component of the MPCP price.

Deckers can always switch off their decks' ASIST interface circuitries and turn their decks into tortoises. If under attack by black IC, this counts as "jacking out" and requires the same tests to succeed (see **Black IC in Combat**, p. 47, in **Intrusion Countermeasures**).

Tortoises reduce the user's Reaction by half, rounding down, to a minimum value of 1. They can be equipped with Response Increase, but users only receive the additional 1D6 for Initiative, not the +2 modifier to Reaction.

ASIST INTERFACE CONSTRUCTION

Software Task
Rating: MPCP Rating
Multiplier: 2 (hot deck)
1 (cool deck)
Cook Task
Time: MPCP Rating x 1 day
Test: Computer B/R (MPCP Rating) Test
Parts: OCC @ program size
Tools: Personal Computer (Memory: MPCP program size)
Microtronics Kit
Optical-Chip Encoder
Installation Task
Time: MPCP Rating x 1 day
Test: Computer B/R (MPCP Rating) Test
Parts: PLC @ MPCP Rating x 2 (hot deck)
PLC @ MPCP Rating (cool deck)
ASIST Processor Unit @ 1,250¥
Tools: Microtronics Kit

HARDENING

Hardening requires some programming—designing corrective subroutines to rewrite damaged personaware, redirecting attack code, and so on—and hardware work to reinforce the deck's resistance to invasive code such as viruses, gray and black IC, and other hazards of the course.

HARDENING CONSTRUCTION

Software Task
Rating: Hardening Rating
Multiplier: 8
Cook Task
Time: MPCP x Hardening Rating x 1 day
Test: Computer B/R (MPCP Rating) Test
Parts: OCC @ Hardening program size
Tools: Personal Computer (Memory: Hardening program size)
Microtronics Shop
Optical-Chip Encoder
Installation Task
Time: MPCP Rating x Hardening Rating x 2 days
Test: Computer B/R (MPCP Rating) Test
Parts: PLC @ Hardening Rating x 2
DTC @ Hardening Rating x 2
Tools: Microtronics Shop

ICCM BIOFEEDBACK FILTER

Intrusion counter-countermeasures (ICCM) technology protects deckers from the worst effects of black IC. New-generation ICCM technology allows ICCM devices to be built directly into cyberdecks.

An ICCM filter increases the decker's chances of jacking out successfully when under attack by black IC. Apply a –2 modifier to the target number for the Willpower (IC Rating) Test (see **Black IC In Combat**, p. 47, in **Intrusion Countermeasures**).

The filter also allows a decker to make two separate Damage Resistance Tests against lethal and non-lethal black IC—one test with Body and one with Willpower. The player may choose the test with the best result to use as the character's resistance. Karma Pool dice added to the test are rolled separately and augment the chosen Resistance Test. Hacking Pool dice cannot be used for these tests.

The ICCM filter is not effective against the psychological effects of psychotropic IC. However, it does buffer the decker from the physical side effects of sparky IC programs (see **Gray IC**, p. 43, in **Intrusion Countermeasures**), the same as it does against black IC.

Constructing an ICCM filter requires Computer B/R and Biotech skills. The Success Tests for the Cook and Installation Tasks use the average of these skills, though two characters may instead work as a team to perform the tasks, each contributing one of the two skills.

ICCM FILTER CONSTRUCTION

Software Task
Rating: MPCP Rating
Multiplier: 4
Cook Task
Time: MPCP Rating x 2 days
Test: Avg. Computer B/R and Biotech (MPCP Rating) Test
Parts: OCC @ ICCM program size
Tools: Personal Computer (Memory: ICCM program size)
Microtronics Shop
Optical-Chip Encoder
Installation Task
Time: MPCP Rating x 2 days
Test: Avg. Computer B/R and Biotech (MPCP Rating) Test
Parts: PLC @ MPCP Rating^2
DTC @ MPCP Rating^2
Bioscanner @ 5,000¥
Tools: Microtronics Shop

I/O SPEED

The input and output of a deck is analogous to the old modems that connected terminals and computers back in the dark ages of computing. The I/O speed indicates the maximum I/O bandwidth that a decker can allocate to a task.

A standard cyberterminal, whether legal or a deck, automatically and always can handle its icon bandwidth as a function of its MPCP, so the I/O speed feature only comes into play when using the optional bandwidth rule (see **Bandwidth**, p. 90). If the optional bandwidth rule is not in effect, all uploads and downloads are always at the full I/O speed of a deck.

I/O speed must be built in multiples of 10. The maximum bandwidth value of a deck is equal to the deck's Sensor Rating x MPCP Rating x 10 Mp.

I/O SPEED CONSTRUCTION

Software Task: None
Cook Task: None
Installation Task
Time: I/O Speed ÷ 20 days (round up)
Test: Computer B/R (I/O Speed ÷ 100, round up) Test
Parts: PLC @ I/O Speed ÷ 20 (round up)
DTC @ I/O Speed ÷ 10 (round up)
Tools: Microtronics Kit

RESPONSE INCREASE

Response Increase is the Matrix equivalent of wired reflexes. Each point of Response Increase increases a persona's Reaction attribute by 2 and Initiative by +1D6.

A deck can support only 3 points of Response Increase. Furthermore, Response Increase cannot exceed a deck's MPCP Rating divided by 4, rounding fractions down (so a deck with MPCP Rating 3 or below cannot sustain any level of Response Increase)

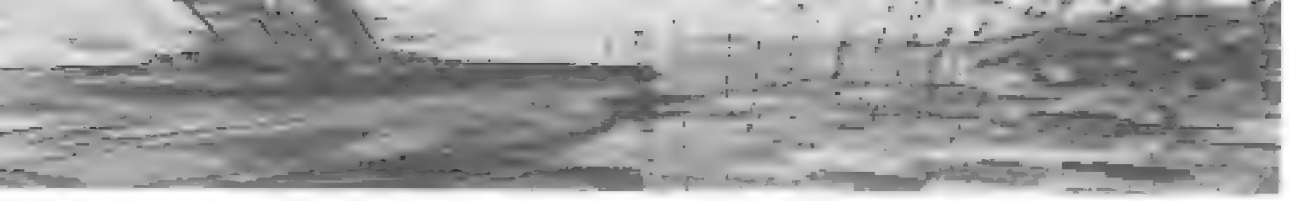
In addition to the deck's 3 points of Response Increase, deckers may gain an additional point of Response Increase by using a reality filter. Furthermore, deckers running hot decks on pure DNI control may gain an additional point of Response Increase. The absolute maximum of Response Increase a deck may have is 5 points, which translates as +10 to Reaction and 6D6 for Initiative!

Response Increase requires both programming and hardware construction. The programming task is based on an effective rating equal to the MPCP, with a multiplier equal to the Response Increase Rating multiplied by 2. For example, on an MPCP-6 deck, the software component of Response Increase-2 would require programming a 6^2 x 4 routine, a design size of 144 Mp. (See **Programs**, p. 100, for information on programming tasks.)

This design size also affects the cost of the task, because the decker must use an OCC large enough to hold the Response program.

RESPONSE INCREASE CONSTRUCTION

Software Task
Rating: MPCP Rating
Multiplier: Response Increase x 2
Cook Task
Time: MPCP Rating x Response Increase x 1 day
Test: Computer B/R (Response Increase x 2) Test
Parts: OCC @ program size
Tools: Personal Computer (Memory: Response program size)
Microtronics Shop
Optical Chip Encoder
Installation Task
Time: (MPCP Rating + Response Increase) x 1 day
Test: Computer B/R (Response Increase x 2) Test



Parts: PLC @ Response Rating x 3
DTC @ Response Rating x 3
Tools: Microtronics Shop

SATLINK INTERFACE

A satlink interface consists of a cyberdeck-mounted protocol conversion logic and a satellite dish. High-density fiber-optic cable with built-in signal boosters connects the deck to the dish. The signal boosters enable a decker to run a signal through several kilometers of this cable without using an external signal booster. Any dish format may be used with a deck fitted with an interface.

A standard satellite dish is one-half meter across and weighs five kilograms. Large portable dishes are one meter across and weigh eight kilograms; they reduce by 1 the target number for tests to locate satellites (see **Satellite Links**, p. 30). Fixed-base earth stations reduce target numbers by 2. Mobile fixed-base earth stations require trucks and trailers.

Characters inclined toward a do-it-yourself philosophy may also fashion temporary satellite dishes out of spray polymer and plastic webbing. These dishes can be assembled and mounted almost anywhere, but they only last for a few hours. The electronics for a temporary dish weigh 3 kilograms and can be reused. The electronic components pack down into a box about 50 centimeters by 25 centimeters by 25 centimeters.

Dish prices are provided in the Satlink Dish Prices Table.

SATLINK DISH PRICES TABLE

Permanent Dishes	**Price**
Standard portable	800¥
Large portable	1,200¥
Fixed-base	900¥
Cable	10¥/meter
Temporary Dish Components	
Electronics	1,000¥
Plastic webbing	5¥
Spray polymer (1 use)	1¥

SATLINK INTERFACE CONSTRUCTION

Software Task
Rating: MPCP Rating
Multiplier: 2
Cook Task
Time: MPCP Rating x 1 day
Test: Computer B/R (MPCP Rating) Test
Parts: OCC @ program size
Tools: Personal Computer (Memory: MPCP program size)
Microtronics Shop
Optical-Chip Encoder
Installation Task
Time: MPCP Rating x 1 day
Test: Computer B/R (MPCP) Test
Parts: PLC @ MPCP
DTC @ MPCP
Tools: Microtronics Shop

STORAGE MEMORY

Storage memory is analogous to the hard drives on old-time computers. Any program in a deck's storage memory can be loaded onto the deck by using the Swap Memory operation. Any utilities a decker plans to use during a run must be kept in storage memory. Data for uploads and downloads can be kept in Storage Memory, or the cheaper off-line storage.

The Matrix 1.0 load-speed rule, which controls the speed of data transfers between storage memory and active memory, does not apply in Matrix 2.0.

STORAGE MEMORY CONSTRUCTION

Software Task: None
Cook Task: None
Installation Task
Time: Memory Size ÷ 100 days (round up)
Test: Computer B/R (Memory Size ÷ 100, round up) Test
Parts: OMC @ Memory Size
DTC @ Memory Size ÷ 10 (round up)
Tools: Microtronics Kit

MISCELLANEOUS COMPONENTS

Certain fixed-price deck components, such as casing, hitcher jacks and vidscreens, act the same whether they are hooked up to an Icepicked CyberShak cheapy that some high-school hacker is using to fix his grades or the finest product of the Fairlight labs.

A deck's casing protects it from the daily bump and grind of a shadowrunner's life. If a deck is exposed to physical damage, it has an effective Bod of 1. The cost of casing is negligible when compared to the cost of other deck components. If someone wants to buy a bunch of empty casings, figure they're worth 10 nuyen apiece. Prices for other basic components appear in the Component Prices Table.

See p. 73, **SR II**, for descriptions of hitcher jacks, off-line storage, and vidscreens.

COMPONENT PRICES TABLE

Component	Base Time	Target Number	Cost
Casing:			
Basic (Impact 1)	NA	NA	Negligible
Level 1 (Impact 2, Ballistic 1)	NA	NA	500¥
Level 2 (Impact 3, Ballistic 2)	NA	NA	2,000¥
Level 3 (Impact 4, Ballistic 3)	NA	NA	5,000¥
Hitcher Jack	48 hours	# of Jacks + 1	250¥
Off-line Storage (OMC)	24 hours	3	50¥ + .5¥ per Mp
Vidscreen	12 hours	4	100¥

DECKS À LA CARTE

In Matrix 2.0, deckers can order decks from manufacturers, who assemble them using components specified by the decker. The Deck Component Prices Table provides formulas for calculating the prices of these components. Each formula represents the entire cost of the component, including software, hardware, circuitry, installation—the whole nine meters. Slot your stick and the deckmeister puts this in your deck, ready to run.

The formulas are derived from the cost of the component's software, chips, circuitry, and so on given in the task description.

Components with software feature a Program Factor (PF), the multiplier in the price formula for software. The PF is determined according to a specific rating of the deck, called the PF basis. For example, the PF basis for a deck's Hardening is the deck's MPCP Rating. The Program Factors Table shows PFs for various ratings.

For example, a MPCP-8 deck has a PF of 500 nuyen for its hardening program formula.

PROGRAM FACTORS TABLE

Program Rating	PF (in nuyen)
1–3	100
4–6	200
7–9	500
10+	1,000

A decker can break prices down further, of course. For example, if he already has the object code for his MPCP, the decker needs only the OCC and installation parts. These prices can be calculated from the MPCP task description.

DECK COMPONENT PRICES TABLE

COMPONENT	PRICE FORMULA
Personaware	**(All prices in nuyen)**
MPCP	MPCP Rating^2 x [(8 x PF) + 195] PF Basis: MPCP
Bod or Evasion	Rating^2 x [(3 x PF) + 95] PF Basis: Program Rating
Masking or Sensor	Rating^2 x [(2 x PF) + 75] PF basis: Program Rating
Memory	
Active Memory	Mp x 7.5¥
Storage Memory	Mp x 6¥
Deck Features	
ASIST Interface	Hot Deck: (MPCP Rating^2 x [(PF x 2) + 40]) + (MPCP Rating x 50) Cool Deck: [MPCP Rating^2 x (PF x 20)] + (MPCP Rating x 25) PF Basis: MPCP
Hardening	(Hardening^2 x [(PF x 8) + 100]) + (Hardening x 70) PF Basis: MPCP
ICCM Biofeedback Filter	(MPCP Rating^2 x [(PF x 4) + 115]) + 5,000 PF Basis: MPCP
I/O Speed	Speed in MePS x 30
Response Increase	[(MPCP Rating^2 x Response) x (PF - 80)] + (Response x 105) PF Basis: MPCP
Satlink Interface	(MPCP Rating^2 x [(PF x 2) + 40]) + (MPCP Rating x 35) PF Basis: MPCP

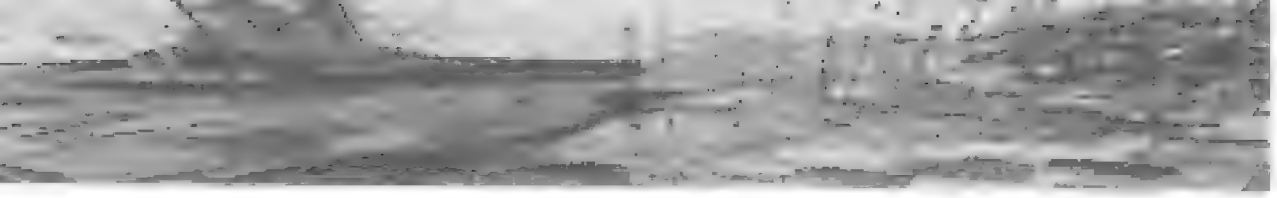
PACKAGE DISCOUNTS

Generally, deckers receive a 10-percent discount when ordering a complete deck (MPCP, persona chips, and ASIST interface, plus optional components and features).

After a particularly lucrative run, SuzyQ decides to treat herself to a new cyberdeck. She orders an MPCP-8/6/6/6/6 deck with Response Increase-2, 480 MePS of I/O speed, Hardening-4, an ICCM filter, 1,000 Mp of active memory, 1,500 Mp of storage memory, and a hot ASIST interface.

The price breakdown for SuzyQ's new deck looks like this:

MPCP:
82 x [(8 x 500) + 195] = 64 x 4,195 = 268,480
Bod:
62 x [(3 x 200) + 95] = 36 x 695 = 25,020
Evasion:
62 x [(3 x 200) + 95] = 36 x 695 = 25,020
Masking:
62 x [(2 x 200) + 75] = 36 x 475 = 17,100



Sensor:
62 x [(2 x 200) + 75] = 36 x 475 = 17,100
Active Memory:
1,000 x 7.5 = 7,500
Storage Memory:
1,500 x 6 = 9,000
ASIST Interface:
[62 x [(500 x 2) + 40]] + (8 x 50) = (64 x 1,040) + 400 = 66,560 + 400 = 66,960
Response Increase:
[(62 x 2) x (500 + 80)] + (2 x 105) = (128 x 580) + 210 = 74,450
I/O Speed:
480 x 30 = 14,400
Hardening:
(42 x [(500 x 8) + 160]) + (4 x 70) = (16 x 4,160) + 280 = 66,560 + 280 = 66,840
ICCM Filter:
(62 x [(500 x 4) +115]) + 5,000 = (64 x 2,115) + 5,000 = 135,360 + 5,000 = 140,360

Putting it all together, the deck's price comes to 732,230 nuyen. At the basic 10-percent package discount, Suzy's bill comes to 659,007 nuyen. A more generous 20 percent package discount brings the price down to 585,784 nuyen.

MPCP	**260,460**
Bod	**25,020**
Evasion	**25,020**
Masking	**17,100**
Sensor	**17,100**
Active Memory	**7,500**
Storage Memory	**9,000**
ASIST Interface	**66,960**
Response Increase	**74,450**
I/O Speed	**14,400**
Hardening	**66,840**
ICCM Filter	**140,360**
TOTAL	**732,230**
10-percent discount	**73,223**
20-percent discount	**146,446**

OPTIONAL RULE: BREADBOARDING

All the base numbers for deck construction assume that the manufacturer or decker is building a standard portable cyberdeck—a laptop, in twentieth-century terminology. But cyberdecks can be *breadboarded*—built larger, faster, and cheaper with whacked out desktop-sized components and external black boxes to handle special functions.

Breadboarded CPUs, which contain an MPCP, personaware, Response, Hardening and I/O speed—weigh 10 kilograms. All other breadboarded components weigh 2 kilograms more than the standard component. A complete breadboarded deck is about the size of a twentieth-century desktop computer.

When using breadboard construction, reduce the target numbers for the Cook and Installation tasks by 2 and reduce the cost of parts by 50 percent. The same discount applies to à la carte deck building. Breadboard components are not compatible with standard decks.

On the other hand, breadboarded and standard decks run the same software, and programs developed for a breadboarded deck can be cooked into OCCs for a regular deck at any time—a program is a program. By the same token, the same utilities run on both standard and breadboarded decks.

C^2 decks cannot be breadboarded. You can never find a hat that fits ...

OPTIONAL RULE: COMMERCIAL CONVERSIONS

Under Matrix 1.0, deckers purchased legal cyberterminals at street prices that reflected the initial steps of deck conversion: stealthing the MPCP signature, expanding the motherboard to accommodate the Evasion and Masking chips, and so on. They retained the commercial circuitry for features such as Hardening and I/O speed and added modules for Response Increase. The Matrix 1.0 rules reflected a parasitic decker subculture that adapted the tools of a host culture—legitimate computer usage—to its own ends.

Matrix 2.0 rules reflect significant advances in the capabilities of illegal programmers and deckmeisters and illegal Matrix technology. Even commercial machines such as the remarkable Fairlight Excalibur lag well behind the SOTA today. As a result, most deckers under Matrix 2.0 assemble their own decks or purchase decks customized to their own specifications. Deckmeisters are the most common source of customized decks, but a few manufacturers produce such machines as well. (See the archetype for the **Deckmeister**, p. 92, for further information.)

OPTIONAL RULE: BANDWIDTH

Bandwidth is the speed at which data moves over a connection. Old-tech acoustical modems measured bandwidth in "baud," or bits per second. A 2,400 baud modem could send or receive 2,400 bits every second. With modern optical tech, bandwidth is measured in MePS: megapulses per second.

Two kinds of bandwidth exist under Matrix 2.0 rules: *Icon bandwidth* and *I/O bandwidth*. Icon bandwidth carries commands and sensory data to and from the deck. I/O bandwidth is used to transfer data. Both types of bandwidth affect the size of a decker's datatrail, which in turn affects how easily trace IC programs can locate a decker (see **Jackpoints**, p. 14 in **Grids and Hosts**, and **Trace Factor**, p. 45 in **Intrusion Countermeasures** for information on using the optional bandwidth rule).

The gamemaster can use one or both forms of bandwidth in his game. The optional Icon bandwidth rule is simple, while the I/O bandwidth rule is more complex. If the group chooses not to use the optional bandwidth rules, assume that any grid connection operates at virtually instantaneous speeds. The I/O speed of cyberdecks determines data-transfer rates, per the **Shadowrun, Second Edition** Matrix rules.

ICON BANDWIDTH

Icon bandwidth handles all the commands and ASIST signals between the cyberdeck and the Matrix. Icon bandwidth is equal to the sum of the decker's persona program ratings and the ratings of all the utilities he has loaded into his deck's active memory. A deck's MPCP, utility options such as the stealth option, and options that reduce memory size, such as the optimization option, do not affect the icon bandwidth.

A decker must set his icon bandwidth at the beginning of a Matrix run. The bandwidth remains constant throughout the run—the decker cannot change its size without disconnecting and starting a new run (see **Suspending Icon Operations**, for the sole exception to this rule). If something destroys or reduces the decker's program ratings, the icon bandwidth may be reassigned, but it cannot be reduced to make his datatrail harder to trace.

Before jacking in, deckers may reduce their icon bandwidths by reducing their persona ratings lower than their actual ratings. Any reduced ratings must remain at their reduced levels for the rest of the run.

Deckers may not reduce the ratings of their utilities—utility programs do not work at anything less than their full ratings. Note that the actual size of the utilities in memory has no effect on icon bandwidth.

Sidewinder has an MPCP-6/5/3/4/4 deck. She has not reduced any of her persona ratings to slim down her icon bandwidth, and so her persona code has a bandwidth of 5 + 3 + 4 + 4—or 16 MePS.

Sidewinder also loaded Sleaze-5, Deception-4, Attack-6, and Analyze-4 into her deck's active memory. That adds another 19 MePS to the bandwidth, for a total of 35 MePS.

Sidewinder decides she wants to load another 5 Mp of utility code for the run, which increases her icon bandwidth to 40.

I/O BANDWIDTH

I/O bandwidth handles uploads and downloads. A deck with an I/O bandwidth of 10 MePS can upload or download 10 Mp of data per second, or 1,000 Mp of data in 100 seconds. Deckers may change their deck's I/O bandwidths at any time by performing Retrain operations.

Deckers may increase their deck's I/O bandwidths by reassigning MePS from their icon bandwidths, but the decker must suspend his icon operations while doing so (see **Suspending Icon Operations**).

Data Transmission

On a 20 MePS Matrix connection, downloading a 1,000 Mp file takes 50 seconds—fast enough for legal users, but potentially lethal for a decker trying to stay one jump ahead of black IC. The same thing applies for deckers trying to upload doctored datafiles or booby-trapped application programs.

To avoid such risky situations, most deckers keep their bandwidths as small as possible. At the last possible moment, they perform Retrain operations to their bandwidths, grab the paydata, and drop the extra MePS as soon as they're done. High bandwidth when the decker doesn't need it can be disastrous if a trace IC program picks up his datatrail.

Utility Loads

Swap Memory operations enable deckers to load new copies of utility programs onto their decks. This may be quite convenient when changing the mix of utility programs on a deck or replacing degraded or crashed utilities. The speed of a Swap Memory operation depends on a deck's I/O bandwidth (see **System Operations**, p. 117, for details).

Multiplexing

Multiplexing enables a decker to upload multiple utilities or upload and download files or programs simultaneously. To multiplex, the decker divides his I/O bandwidth MePSs among different jobs any way he likes. For example, a decker with 100 MePS of I/O bandwidth could download files at a rate of 25 MePS and upload utility programs at a rate of 75 MePS.

Multiplexing is a Free Action and requires no tests.

Retraining

Retraining refers to the process of changing I/O bandwidth during a Matrix run by using a Retrain operation. (See **System Operations**, p. 117, for further information.)

Suspending Icon Operations

Deckers may re-assign their icon bandwidths to I/O bandwidth by suspending their icon. However, icon bandwidth MePS cannot be divided—the entire icon bandwidth must be reassigned. A decker with an icon bandwidth of 35 MePS, for example, could re-assign 35 MePS to his I/O bandwidth, but not 15 MePS. Suspending Icon operations are Free Actions.

All persona ratings—MPCP, Bod, Evasion, Masking and Sensor—drop to 1 when Icon operations are suspended. No matter how jazzed up the cyberdeck's Response Increases may be, the decker gets only 1D6 for Initiative. The decker also loses extra initiative dice from reality filters and DNI controls. Lastly, all utility program ratings are reduced by half (round fractions down).

To restore the reduced ratings to their original values, the decker must reallocate the bandwidth back to its original purpose, which is another Free Action. However, the ratings do not return to their original values until the decker's next available action. For example, if a decker suspends Icon operations and is attacked by IC, he can release the I/O bandwidth at any time but will have to fight off the IC with reduced persona and utility ratings, and an Initiative based on those reduced values, until his next action. This is a very dangerous proposition.

THE DECKMEISTER

"Everyone who's gonna make it in the Matrix comes to me—or someone like me. Unless, of course, they spend a couple of years getting as good as I am. You wanna punch hot deck, you need the right wares—the hard and the soft. You need code? I got code. You need chips? I got chips. If you've got the cred, I'll set you up with whatever you need."

QUOTES

"Don't tell me what you want it to look like. Tell me what you want it to *do*."

"Mitsuhama's got a new algorithm for that. Not on the public boards yet, but for the right price . . ."

"OK, now jack in again and tell me if that's what you had in mind."

COMMENTARY

The deckmeister represents the top of his craft. He's a master programmer, a master microtronicist—he can produce anything in the way of cyberdecks or programs that a decker could need. If a character has a deckmeister as his contact, ignore the Street Index for prices—the character gets everything at list, as long as he maintains good relations with the deckmeister. The 'meister has no patience with Matrix posers and decker wannabes, though. If you aren't serious about running the nets, don't waste his time.

Attributes

Body: 3
Quickness: 2
Strength: 2
Charisma: 3
Intelligence: 6 (8)
Willpower: 5
Essence: 1.6
Reaction: 5

Skills

Computer: 7
Computer (Software): 10
Computer (Hardware): 9
Computer B/R: 10
Computer Theory: 4
Electronics: 3
Electronics B/R: 4
Etiquette (Matrix): 4
Etiquette (Street): 3

Initiative: 5 + 1D6 (Matrix Initiative per gear)
Professional Rating: 1–2

Cyberware

Datajack, 600 Mp FIFF Memory
Encephalon-4 (3D6 Task Pool)
Softlink-2
SPU (I/O)-4

Gear

As appropriate

THE DECK SHOP

You won't find the deck shop at a shopping mall. No neolux sign outside proclaiming "Highly Illegal Cyberdecks Sold Here." The deck shop may be a backroom operation behind a legit front, or an enterprise hidden behind samurai on retainer, muscle-for-hire from the local organized-crime outfit, or another equally deadly force. All part of the overhead, chummer.

Inside, the deck shop may be a devil rat's nest of components, coding workstations, chip cookers and raw optical crystals all spilling over benches and shelving. Or the shop may be a complex that makes anyone else's clean-and-neat look like nouveau pigsty. Personal style rules in this field and competence counts more than housekeeping.

No matter how it's arranged, the equipment adds up to a microtronics facility worth 300,000 nuyen. If the deckmeister has been in business any length of time, the deck shop contains a couple of meganuyen worth of raw chips, logic circuits, and auxiliary components like bioscanners and ASIST interfaces. He keeps local computing power with a few gigapulses or so of addressable memory on tap, with a workstation or a development mainframe for the real top-line coders. Chips and miniCDs with meg after meg of source code are filed according to some organizational scheme—maybe neatly, maybe in some chaotic fashion that only the deckmeister can unravel.

Kids used to grow up dreaming about Santa's workshop. This is what deckers dream of when visions of sugar plums dance through their heads, even if the elves here are likely to be heavily armed and prone to mocking wordplay in Sperethiel.

Oh, and don't even think about making a run on the place. The thought of all that gear might be tempting, but anyone who hits a deck shop draws the wrath of the shop's deckmeister and his muscle, not to mention every decker who depends on the shop. Drek, you might as well sign over your cred to the Universal Brotherhood and send Lone Star a resumé of your runs—you'll die more quickly.

PROGRAMS

Bring me my bow of burning code. Bring me my arrows of design.

o

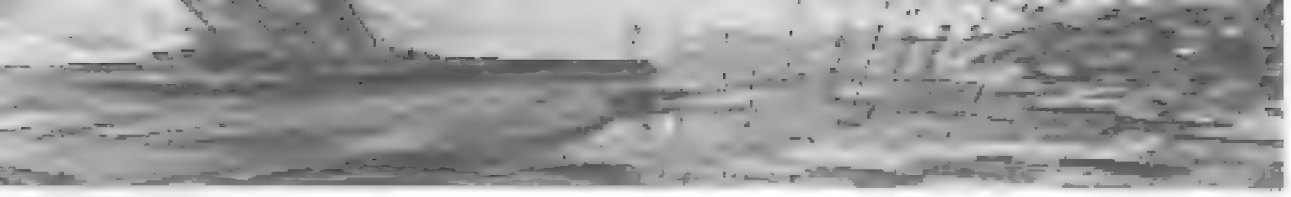
-Jerusalem. decker

Deckers use a wide variety of different types of programs. Persona programs define the decker's online icon. Utility programs help him carry out system operations or serve as tools for specific actions. Command set programs instruct computers to perform specific jobs.

This section defines the various types of programs and provides rules for creating, or programming, them. The programming process applies to the creation of any type of program from the deadliest attack utility to a simple spreadsheet.

Note that the rules presented in this section do not apply to persona and deck programs. Rules for these programs appear in **Cyberdecks**, p. 81.

BERGTING 95



SOURCE AND OBJECT CODE

A source program, also called source code, is the original form of a program. All source programs are written in programming languages intelligible to humans. Common programming languages in the Sixth World include HoloLISP, InterMod, MATCom, and Oblong. These languages use different combinations of verbal or written input and dynamic icon manipulation to combine code icons in virtual reality to literally construct programs.

After a programmer has written the source form of a program, he can translate it into an object format. Object format is the actual "machine language," a series of linked holographic constructs that constitute executable programs in Matrix technology. Object code is what is loaded into memory when a utility runs or is cooked into an OCC.

A decker must have the source code of a program to upgrade or modify the program. Object-code copies of programs cannot be used to change a program.

UTILITIES

Theoretically, a sufficiently godlike decker could command the Matrix with nothing but his bare persona and skill alone. Less divine netheads, however, must supplement their puny skills with utility programs. Utilities come in four varieties: operational, special, offensive, and defensive. Operational utilities apply to a decker's System Tests. These prove especially useful when performing system operations, hence the name *operational* utilities. Special utilities perform specific tasks in the Matrix. Offensive utilities are used to damage opposing deckers, IC programs, and so on. Defensive utilities are designed to prevent or reduce damage taken in cybercombat.

The multiplier value listed in each utility entry is used in software tasks (see **Cyberdecks**, p. 81) and programming (see **Program Size**, p. 101). Each listing also notes any system operations for which the utility may be used (see **System Operations**, p. 108, for descriptions and rules for system operations). Some utility descriptions also list options that may be used with the utility (see **Optional Rule: Utility Options**, p. 102, for descriptions and rules for utility options).

Unless otherwise noted, utility programs must be preloaded into both active memory and the decker's online icon to work.

OPERATIONAL UTILITIES

Operational utilities help deckers execute system operations, in the same way that a samurai's smartlink makes his gun a more effective tool and his dermal armor backs up his armored jacket. Operational utilities reduce the target numbers of a decker's System Tests by the utility rating (see **System Tests**, p. 19 in **Matrix 2.0**). Deckers may perform system operations without utilities (see **System Operations**, p. 108)—not having the right program does not make the operation impossible, just more difficult.

All operational utilities may use the DINAB, one-shot, optimization, and squeeze options.

Analyze

Multiplier: 3

System Operations: Analyze IC, Analyze Icon, Analyze Security, Locate IC

The analyze utility reduces the target numbers for System Tests that identify IC, programs, and other resources or events controlled by a host.

Browse

Multiplier: 1

System Operations: Locate Access Node, Locate File, Locate Slave

The browse utility reduces the target numbers of Index Tests made to locate specific data values or system addresses. Unlike analyze and scanner utilities, which search for Matrix activity, the browse utility works on the contents, or real-world functions, of these data nodes.

Commlink

Multiplier: 1

System Operations: Retrain, Tap Comcall

The commlink utility reduces the target numbers of any tests that affect the decker's communications link.

Crash

Multiplier: 3

System Operations: Crash Application, Crash Host

The crash utility does just what its name states: reduces the target numbers for deckers' attempts to crash an application or host.

Defuse

Multiplier: 2

The defuse utility reduces the target numbers of System Tests made to defuse data bombs (see **Data Bombs**, p. 41).

Deception

Multiplier: 2

System Operations: Graceful Logoff, Logon to (LTG, RTG, or Host)

Unless otherwise noted, the deception utility may be used to reduce the target number of all Access Tests.

Decrypt

Multiplier: 1

System Operations: Decrypt Access, Decrypt File, Decrypt Slave

The decrypt utility reduces the target numbers of any System Tests made to defeat scramble IC programs.

Disinfect

Multiplier: 2

System Operations: Disinfect

The disinfect utility reduces the target numbers of any System Tests made to destroy worm viruses.

Evaluate

Multiplier: 2

System Operations: Locate Paydata

The evaluate utility sifts through large data samples to find valuable loot. However, the utility degrades rapidly as market demands change. The gamemaster rolls 1D6 ÷ 2, (round fractions up) at the end of each run. The ratings of all evaluate programs degrade by the die roll result. This loss of effectiveness occurs whether the decker is currently in play or not.

Deckers with source copies of evaluate utilities can upgrade them per standard rules (see **Upgrading**, p. 83) or spend Karma Points to restore them—1 Karma Point restores 1 Rating Point to the evaluate utility. This expenditure represents time spent programming stock market analyses, rumors, news stories, shadowtalk, and other data into the evaluate program.

Mirrors

Multiplier: 3

System Operations: Decoy

The Mirrors utility reduces the decker's target number for System Tests used in the Decoy operation.

Read/Write

Multiplier: 2

System Operations: Download Data, Edit File, Upload Data

The read/write utility reduces the decker's target number for System Tests necessary for the operations listed, and also for any other System Tests that may be needed when accessing, editing, or loading/creating data in the Matrix.

Relocate

Multiplier: 2

The relocate utility reduces the target numbers of the special tests made to defeat trace IC programs that have begun their location cycles. (See **Trace IC**, p. 45, for further information.)

Scanner

Multiplier: 3

System Operations: Locate Decker, Locate Frame

The scanner utility reduces the target numbers of System Tests made during operations that search for deckers, frames, or their effects.

Spoof

Multiplier: 3

System Operations: Command Slave, Edit Slave, Monitor Slave

The spoof utility reduces the target numbers for all System Tests made to affect system and subsystem slaves.

Validate

Multiplier: 4

System Operations: Dump Log, Validate Passcode

The validate utility reduces the target numbers of any System Tests made to implement administrative changes or read administrative logs.

SPECIAL UTILITIES

Special utilities perform specific jobs. They cannot be programmed on the fly—if the decker does not have the program pre-loaded, he cannot use it.

Compressor

Multiplier: 2

The compressor utility reduces the size of data being uploaded or downloaded by 50 percent. The maximum file size that the compressor utility can handle is Rating x 100 Mp. A 100 Mp file would be compressed to 50 Mp, halving the time it takes to upload or download.

Decks must have enough active memory to accommodate the decompressed size of a compressed utility being uploaded. If the deck does not have adequate active memory, it cannot perform the Swap Memory operation. For example, uploading a compressed 100 Mp utility requires 100 Mp of free active memory, even though the program is crunched down to 50 Mp for the upload.

Decompressing a file or program on the Matrix requires a Complex Action. Compressed files and programs must be decompressed before they can be read or used.

Sleaze

Multiplier: 3

The sleaze utility combines with a deck's Masking Rating to enhance the deck's Derection Factor: (Masking + Sleaze) ÷ 2, round up.

Track

Multiplier: 8

The least reverent of the current publications focusing on the Matrix describes the track utility as "trace IC for deckers." Most sources attribute its development to a Renraku programmer who decompiled Lone Star's beagle utility (see the **Lone Star** source book, p. 123). When the programmer's team produced an open ended search algorithm that put the original beagle design to shame, a junior engineer on the staff disappeared into the shadows with the source code. Within weeks, track utility programs began showing up in the catalog files for Hacker Heaven and other hot software sources.

In game play, the track utility is used as a combat program against hostile deckers. After each successful attack, note the number of successes the attacking decker scored. The target decker must make an Evasion (Track Rating) Test. If the Evasion Test fails to yield an equal or greater number of successes, the attacker's track utility locks onto the target decker's datatrail and begins its location cycle, similar to trace IC (see **Trace IC**, p. 45). Divide 10 by the attacker's net successes to determine how many turns the track utility needs to locate the target decker's jackpoint.

The target decker can try to escape the attacking decker by logging off or jacking out. However, the track utility makes log-off operations more difficult and may trace a jacked-out decker in the same way as trace IC.

Targeted deckers can use the relocate utility against track programs as against any trace program (see **Relocate It**, p. 46, in **Intrusion Countermeasures**). When doing so, the targeted decker makes his test against the attacking decker's Sensor Rating instead of the system's Control Rating. If the relocate utility succeeds, the track program fails completely. The attacker must successfully attack the target decker again before using the track utility against his opponent.

Of course, the target decker can always crash the attacking persona, which would stop all its pesky programs.

OFFENSIVE UTILITIES

Offensive utilities inflict damage on the icons of deckers, IC programs, running programs, datafiles—pretty much anything. Some offensive utilities, such as the attack utility, are general, brute-force destructive logics. Others are subtler and more limited.

A decker can program the attack utility on the fly (see **Cybercombat**, p. 123) but cannot program any of the other offensive utilities during a run.

The following descriptions specify the targets each utility program can attack.

Attack

Multiplier
Light: 2
Medium: 3
Serious: 4
Deadly: 5

Target: Deckers, frames, IC, SKs (see **Artificial Intelligences**, p. 138)

Options: Area, chaser, DINAB, limit, one-shot, optimization, penetration, stealth, targeting

The attack utility, the least subtle offensive program, can be programmed to inflict Light to Deadly damage. It samples the instruction algorithms of the targeted icons and tries to introduce fatally coarse memory faults into the icon's most frequently accessed code segments. In cybercombat, that translates to a direct attack on the Condition Monitor of the decker or IC icon.

The attack utility affects online icons only and has no effect on a decker's meatbody or cyberdeck.

Black Hammer

Multiplier: 20

Target: Deckers

Options: One-shot, optimization, targeting

Two years ago it was a rumor, last year a bleeding-edge weapon on the decks of Lone Star's GridSec elites. This year the so-called black hammer utility is cropping up in shadowy hands.

The black hammer utility is a black IC program that targets the decker, not the deck. It can kill a decker without knocking his cyberdeck off-line, so that the decker's jackpoint remains traceable. Black hammer lacks the blaster-like capabilities of mainframe-driven black IC, but otherwise its effects are identical to those of lethal black IC (see **Black IC**, p. 47 in **Intrusion Countermeasures**).

The maximum rating for the black hammer utility is half the programmer's Computer Skill, rounded up. The program can be installed in a semi-autonomous knowbot (SK) (see **Artificial Intelligences**, p. 140), but not in a frame.

Hog

Multiplier: 3

Target: Deckers

Options: DINAB, one-shot, optimization, targeting

Hog is a virus weapon used by deckers against other deckers. It introduces simple, self-replicating code into the target cyberdeck. The self-replicating code occupies the deck's active memory and crashes running utilities.

Whenever an attacker makes a successful attack using a hog program, the target makes an MPCP (Hog Rating) Test. (Hardening reduces the target number for this test.) If the attacker wins the test, the hog utility reduces the rating of the highest-rated program running on the targeted deck by 1 point for every 2 net successes the attacker achieved. The hog utility continues to drain the same number of rating points at the end of every subsequent Combat Turn until it has crashed the program. Then the hog program repeats the process with the next highest-rated program on the targeted deck. The hog program continues this process until it has crashed every program on the targeted deck.

Programs infected with the hog virus operate at their reduced ratings until the hog virus crashes them completely.

A decker may purge a hog virus from an infected deck by spending a Complex Action and making a successful Computer (Hog Rating – Hardening) Test. Increase the target number by the original rating of the infected program. A single success on the test wipes both the hog virus and the infected program from the deck's active memory. A hog virus cannot be purged without purging the infected program.

Deckers can use the Swap Memory operation to reload programs crashed by a hog virus or purged in the course of eliminating the virus.

Killjoy

Multiplier: 10

Target: Deckers

Options: One-shot, optimization, targeting

The killjoy utility mimics non-lethal black IC. Killjoy programs inflict Stun damage to a decker's meatbody. Otherwise the killjoy utility is identical to the black hammer utility. The maximum program rating for a killjoy utility is half the programmer's Computer Skill, rounded up.

Poison

Multiplier: 3

Target: Deckers, Frames, SKs

Options: Area, DINAB, one-shot, optimization, targeting

The poison utility attacks the Bod Rating of targeted personas and behaves like acid IC. If the decker successfully attacks his target, the target makes a Bod (Poison Rating) Test. Reduce the target's Bod Rating by 1 for every 2 net successes the attacker achieved.

Restrict

Multiplier: 3

Target: Deckers, Frames, SKs

Options: Area, DINAB, one-shot, optimization, targeting

The restrict utility attacks the Evasion Rating of targeted personas. If the decker successfully attacks his target, record his successes. The target makes an Evasion (Restrict Rating) Test. Reduce the target's Evasion Rating by 1 for every 2 net successes the attacker achieved.

Reveal

Multiplier: 3

Target: Deckers, Frames, SKs

Options: Area, DINAB, one-shot, optimization, targeting

The reveal program attacks the Masking Rating of targeted personas. The target makes a Masking (Reveal Rating) Test. Reduce the target's Masking Rating by 1 for every 2 net successes the attacker achieved.

Slow

Multiplier: 4

Target: IC

Options: Area, DINAB, one-shot, optimization, targeting

The slow utility reduces the execution speed of proactive IC. Whenever a decker hits IC with the slow utility, make an opposed Resistance (Slow Rating) Test for the targeted IC program. If the IC test generates more successes, nothing happens to it. If the slow Attack Test achieves more successes, the IC loses 1 action for every 2 net successes the IC achieved. If the IC has no actions left in a turn, it hangs—goes dead.

Note that temporarily disabling IC in this manner prevents the IC from raising the decker's security tally. However, suppressing the IC requires 1 point of Masking (see **Suppressing IC**, p. 40 in **Intrusion Countermeasures**). If the IC is not suppressed at the beginning of the next Combat Turn, the gamemaster rolls Initiative for the IC per standard rules and the IC resumes where it left off.

Reactive IC is not vulnerable to the slow utility. Trace IC is only vulnerable to the slow utility during the hunting cycle.

Steamroller

Multiplier: 3

Target: Tar Baby, Tar Pits

Options: DINAB, one-shot, optimization, targeting

The steamroller utility is a specific type of attack program that inflicts (Rating)D damage to tar IC programs. The steamroller program is immune to the destructive effect of tar programs (hence the name "steamroller"—it flattens tar). Crashing tar IC programs with the steamroller utility increases the decker's security tally unless the steamroller program is equipped with the stealth option or the decker suppresses the IC per standard rules.

DEFENSIVE UTILITIES

Defensive utilities are designed to prevent, reduce, or repair damage taken in cybercombat. Defensive utilities cannot be programmed on the fly. As with offensive utilities, add or subtract the utility rating as indicated in the individual descriptions.

Armor

Multiplier: 3

Options: Optimization

The armor utility reduces the Power of damage inflicted on a decker's icon by the Armor Rating. For example, the armor utility reduces all damage caused by killer IC or the attack utility. But against black IC, it reduces only damage taken by the decker's icon—not damage taken by the decker's meatbody. In short, the armor utility is always effective against standard damage to the icon's condition monitor but has no effect on collateral damage to the decker or his deck, which must depend on Hardening for protection.

The armor utility loses 1 Rating Point every time the decker takes damage—every time it fails to completely absorb damage from a hit. Deckers can replace degraded armor utilities with fresh copies of the program by performing the Swap Memory operation.

Camo

Multiplier: 3

Options: One-shot, optimization

The camo utility rating is added to the trace factor, which impedes the attempts of trace IC to follow a deck's datatrail (see **Trace IC**, p. 45, for more details). Additionally, the utility acts as an operational utility for the Redirect Datatrail operation (see **System Operations**, p. 117).

Cloak

Multiplier: 3

Options: One-shot, optimization

The cloak utility reduces the target numbers for Evasion Tests made during combat maneuvers (see **Combat Maneuvers**, p. 121 in **Cybercombat**).

Lock-On

Multiplier: 3

Options: One-shot, optimization

The lock-on utility reduces the target numbers for opposed Sensor Tests made during combat maneuvers (see **Combat Maneuvers**, p. 121 in **Cybercombat**).

Medic

Multiplier: 4

Options: DINAB, optimization

The medic utility is used to reduce the number of filled in boxes in the online icon's Condition Monitor. To use the utility, a decker must spend a Complex Action and make a Success Test using a number of dice equal to the medic utility rating. The target number is determined by the level of damage the icon has suffered, as shown on the Medic Target Numbers Table.

Each success achieved on the Success Test repairs 1 wound on the Icon's Condition Monitor. The program loses 1 Rating Point each time it is used, whether it scores any successes or not. Deckers may load a new copy of the medic utility and restore it to its full rating by performing a Swap Memory operation.

MEDIC TARGET NUMBERS TABLE

Wound Level	Target Number
Light	4
Moderate	5
Serious	6

Restore

Multiplier: 3

Options: DINAB, one-shot, optimization

The restore utility repairs damage to online Icon attributes. However, the program cannot repair permanent damage to the actual persona chips caused by gray or black IC.

To use the restore utility, the decker makes a Restore Test against a target number equal to the rating of the program that caused the damage. If the Icon has suffered damage from different programs, such as Acid-4 and Poison-6 IC programs, use the higher rating.

The utility repairs 1 point of damage for every 2 successes achieved on the Restore Test.

Shield

Multiplier: 4

Options: Optimization

Shield enables a decker to parry attacks in cybercombat. Whenever an attack affects the decker's persona, the decker may make a Shield Test against a target number equal to the skill of the attacker—Computer Skill for a decker, the system's Security Value for IC programs, the DINAB value for a frame, and so on. Reduce the attacker's net successes by the number of successes achieved on the Shield Test.

The shield utility is also effective as a defense against crippler and ripper IC attacks and any other attack in which the targeted decker makes an opposed test. In these cases, the decker makes a Shield Test and applies any successes from that test to his successes on the opposed test.

A shield utility loses 1 Rating Point every time it is used, whether the Shield Test succeeds or not. Deckers may load fresh copies of the utility by performing Swap Memory operations.

PROGRAMMING

All programming jobs are tasks, with specific base times, task periods, and tests needed to complete the work (see **Deckers and Tasks**, p. 77, in **Deckers**).

The base time required to write a program equals the size of the program multiplied by 2. The result is the base time

PROGRAM SIZE TABLE

Program Rating	Multiplier 1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	4	8	12	16	20	24	28	32	36	40
3	9	18	27	36	45	54	63	72	81	90
4	16	32	48	64	80	96	112	128	144	160
5	25	50	75	100	125	150	175	200	225	250
6	36	72	108	144	180	216	252	288	324	360
7	49	98	147	196	245	294	343	392	441	490
8	64	128	192	256	320	384	448	512	576	640
9	81	162	243	324	405	486	567	648	729	810
10	100	200	300	400	500	600	700	800	900	1,000
11	121	242	363	484	605	726	847	968	1,089	1,210
12	144	288	432	576	720	864	1,008	1,152	1,296	1,440
13	169	338	507	676	845	1,014	1,183	1,352	1,521	1,690
14	196	392	588	784	980	1,176	1,372	1,568	1,764	1,960

expressed in days. When calculating the base time, include in the program size any size increases from program options.

To determine the task period for the job, make a Computer (Program Rating) Test (the Software concentration or Matrix Programming specialization may be substituted for the Computer Skill). Then divide the base time by the number of successes on the Computer Test. The result is the task period, expressed in days. The Program Rating used in the Computer Test is the actual rating of the program. Do not include changes in the rating due to options.

PROGRAM RATINGS

The ratings of a deck's MPCP and frame cores may not exceed the programmer's skill rating multiplied by 1.5. (The programmer may use the Computer Skill, or its Software concentration or Matrix Programming specialization for programming.) The ratings of all other programs may not exceed the skill rating itself.

PROGRAM SIZE

Determine a program's size by squaring its rating and multiplying the result by the program multiplier supplied in the program description. The Program Size Table provides precalculated sizes for programs of Ratings 1 through 14 and multipliers up to 10 (all program sizes are shown in megapulses). The table should cover everything within reason. For unreasonable programs, gamemasters must perform their own calculations. If modifiers of some kind reduce the effective rating of a program below 1, use a Rating of 1 to determine design time and memory requirements.

To find the size of a program on the table, find the program's rating in the Program Rating column along the left side of the table. Then read across to the correct Multiplier column. A Rating 4 program with a multiplier of 6, for example, has a size of 96 Mp.

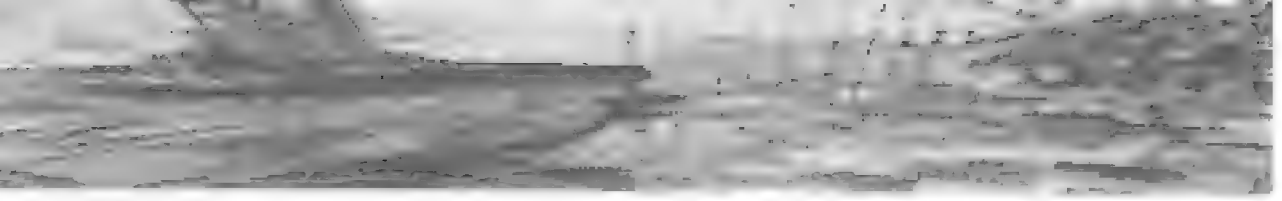
PROGRAMMING TOOLS

The minimum setup needed for programming is a personal computer with memory equal to or greater than the size of the program being created. Personal computers cost 20 nuyen per Mp of memory. Miniature decks cost more (see p. 259, **SR II**). If the personal computer has double the required memory, it confers a +1 task bonus (see **Deckers and Tasks**, p. 77, for further information on task bonuses).

The programmer can install a basic programming tool suite in his personal computer as well. The tool suite, called a programming "kit," confers another –1 task bonus and costs 1,500 nuyen.

A more elaborate programming package called a programming "shop" confers a +2 task bonus. A programming shop costs 15,000 nuyen and doubles the memory in the personal computer. If a decker has already doubled the memory on his personal computer, installing a programming shop effectively quadruples the computer's memory and provides a +3 task bonus (+1 for doubled memory, +2 for shop).

Using a mainframe host instead of a personal computer confers a +4 bonus to programming tasks. However, the mainframe's Security Value must be at least half the rating of the program being created. Determine the cost of one day of programming time on a mainframe by multiplying the mainframe's Security Value by 100 nuyen. Companies that sell machine time actually set up virtual machines with the necessary ratings and have very active security. These companies do not hesitate to revoke the passcodes of any customer who messes with the system's security or tries to break out into native mode. Purchasing a mainframe is out of the question for most deckers, but for the more ambitious programmers, determine the purchase cost of a mainframe by multiplying the mainframe's Security Value by 5,000,000 nuyen.



A programming suite installed in a mainframe adds a +1 task bonus to the mainframe host bonus. Programming time on a mainframe that carries a programming suite is quite expensive, however. Determine the cost of one day of programming time by multiplying the mainframe's Security Value by 200 nuyen. Purchasing a mainframe programming suite costs 300,000 nuyen—and of course, the suite is useless without a mainframe to run it on.

Note that standard programming tool suites and shops can be used only on personal computers. Mainframe programming suites can only be used on mainframe hosts.

Deckers may also "steal" programming time on a host. To do so, the decker must perform a successful Validate Passcode operation and plant a counterfeit passcode in the host. The decker may then use the host until the host system administrators notice the funky code and delete it. Of course, system operators may also send their own deckers or heavy IC programs after the offending programmer as well.

PROGRAMMING TOOLS

Tool	Task Bonus	Cost (in nuyen)
Personal computer		20 per Mp of memory
Double required memory	1	20 per Mp of memory
Programming kit	1	1,500
Programming shop	2	15,000
Mainframe host	4	100 x Security Value per day (5,000,000 x Security Value to purchase)
Mainframe		100 x Security Value per day
Programming suite	5	(300,000 to purchase)

Selena needs to upgrade her offensive capabilities in the Matrix. She has a Computer Skill 8, and so she decides to write her own copy of Attack-8S. First, she determines the size of the new program. The rating on the new program is 8 and the Attack-S multiplier is 4, so the equation looks like this: 82 x 4 = 256 Mp.

Next, she calculates the base time for the programming task: 256 x 2 = 512 days. To determine the task period, Selena makes a Computer Test against a Target Number 8, the same value as the program rating. Her test yields 2 successes, and she buys 2 more with Karma Points, for a total of 4 successes. She then divides the base time, 512, by 4, which gives her a task period of 128 days.

Selena has only limited funds available, so she buys herself a personal computer with 256 Mp of memory at a cost of 5,120 nuyen (256 x 20) and gets to work. She works on the program for 10 days, reducing the task period to 118 days, then takes a break for a few weeks to pay the rent with a shadowrun.

With her cut of the take from the run, Selena drops another 5,120 nuyen to upgrade her PC to 512 Mp of memory. That's twice the memory she needs for the programming task, and so she receives a +1 task bonus. As a result, her next 10 days of work count as 20, reducing the task period to 98 days.

Unexpectedly, Selena comes into a bit more money, and so she buys a programming kit for 1,500 nuyen. The kit provides another +1 task bonus. Combined with the bonus from the memory upgrade, that produces a +2 task bonus. As a result, Selena's next 5 days of work count as 15, reducing the task period to 83 days.

On her next run, Selena haggles with Mr. Johnson and gets 15 days of programming time on a mainframe in lieu of a cash payment. (The mainframe has a Security Value of 4, so it's adequate for creating the Attack-8S program.) Mainframe access confers a +4 bonus, so her 15 days of work on the mainframe count as 75.

With only 8 days left in the task period, Selena returns to her personal computer. The PC provides a +2 bonus with its doubled memory, and so she completes the programming task in 3 days.

Programming Teams

Characters may also work together in teams to produce programs. The maximum size of a team equals half the Computer Skill rating, rounded down, of the team member with the highest Computer Skill. The maximum rating of programs the team may produce equals 1 plus the Computer Skill rating of the team member with the highest Computer Skill. For example, a player with a Computer Skill of 8 may form a programming team with 3 other players, and, if his is the highest skill in the group, the team may produce programs with Rating 9 programs.

For the Computer Skill Test made to determine the task period, average the skills of the team members, rounding up. For example, a team of three programmers, with skills of 6, 7, and 6 respectively, would make the test with an effective Skill Rating of 7.

The team cannot share tools and task bonuses. Each team member must have the minimum required computing resources to work on the program. Without task bonuses, each day of work by the team reduces the task period by 1 day. To apply task bonuses, add all the bonuses the team members possess and reduce that total by the number of programmers on the team. The result is the team's task bonus. For example, a team of 3 characters with task bonuses of +3, +2, and +3, would have a +5 group task bonus. Each day the team works on its program reduces the task period by 6 days.

OPTIONAL RULE: UTILITY OPTIONS

Utility options are modifications that alter the basic operation of utilities. Generally, an option enhances a program's performance in one way but limits its performance in some other.

Options dramatically increase the complexity of the Matrix rules. The interaction of options and programs can become quite intricate, and so gamemasters and players should become thoroughly familiar with the standard Matrix rules before introducing utility options into their games. As always, gamemasters may modify the options rules to best fit their games.

Gamemasters may also introduce only specific utility options into their games. However, gamemasters should keep utility and IC options balanced. Many of the utility options are designed to counter specific IC options (see **Intrusion Countermeasures**, p. 50), and allowing IC options without providing deckers with the means to combat them may produce unbalanced and unsatisfying game play.

OPTIONS AND SIZE

Under the standard Matrix rules, program size is fixed. The size that governs the base time to write the program is the size that the program occupies on a cyberdeck.

When using utility options, programs have two separate sizes. The *actual size* measures the space the program occupies on a cyberdeck. The *design size* is used to determine the programming base time for the program.

Options may change the size of a utility program in one of two ways. First, adding an option to a program may alter the program's rating, thus altering its real size. Or an option may increase a program's size by a percentage of its original size. In certain cases, an option may reduce the actual size of the program but increase the design size because it requires hyper-efficient code.

When layering multiple options on a single program, apply any changes to the program's rating before calculating any percentage changes in its size. For example, if a set of combined options add +2 and +3 modifiers to the program's rating and a 50-percent increase in its design size, apply the rating modifiers first. Calculate the program size based on the new rating and then apply the percentage increase. Cumulative percentage changes are applied sequentially. For example, if a 180 Mp program receives two 50-percent size reductions, first reduce the 180 Mp to 90 Mp. Then reduce the 90 Mp to 45 Mp.

OPTIONS AND RATINGS

Changes in the effective rating due to options do *not* count against the maximum rating that a programmer can design. For example, a programmer with a Computer Skill 8 can design any utility with a Rating of 8, even if options raise its effective rating for programming purposes.

Changes in the rating due to options also do not affect the target number for the programming task. A Slow-4 utility with an Area-4 option would have a Target Number of 4, not 8.

The maximum rating for options that themselves have ratings, such as the area option, is the base rating of the program. A Slow-4 program can have no more than Area-4, even if the programmer's skill is higher.

OPTIONS AND COST

The price of a program depends on its base rating and design size. For example, an Attack-6M program without options has a Base Rating of 6 and a design size of 108 Mp. The program's street price equals its size, 108 Mp, multiplied by 200: 108 x 200 = 21,600 nuyen.

An Attack-6M(Skulk-4) program has an Effective Rating of 10 and a design size of 300 Mp, for a price of 60,000 nuyen.

AREA

Rating Modifier: +Area Rating

The area option enables a utility to engage multiple targets on the host. The utility may engage a number of targets equal to the area option rating. The decker makes one Attack Test and applies the result to all specified targets. Increase the target number for each target by the total number of targets.

For example, two corp deckers, A and B, are engaging an intruder on a green host. The Target Number against legitimate icons on a Green system is 4. But decker A maneuvered successfully to dodge an attack already and scored 2 extra successes, and so the target number against him receives a +2 modifier, which raises it to 6.

The intruder engages the two corp deckers using an attack program fitted with the area option. Against decker A, the Target Number is 8 (6 – 2 for attacking 2 targets). Against decker B, the Target Number is 6 (4 + 2 for attacking 2 targets).

The intruder's Attack Test yields a 7, 8, and 7. Therefore, he achieves 1 success against decker A and 3 successes against decker B.

Note that the defensive utility armor protects against utilities fitted with the area option. Personas and IC programs carrying the armor utility add a +2 modifier to their effective Armor Ratings when attacked with utilities bearing the area option.

CHASER

Rating Modifier: +1

The chaser option negates the +2 target-number penalty for attacks against IC programs with the shift defensive utility. However, the chaser option adds an additional +2 target-number penalty to attacks against IC programs with the shield defensive utility.

The chaser and penetration options cannot be placed on the same utility.

DINAB

Rating Modifier: +DINAB Rating

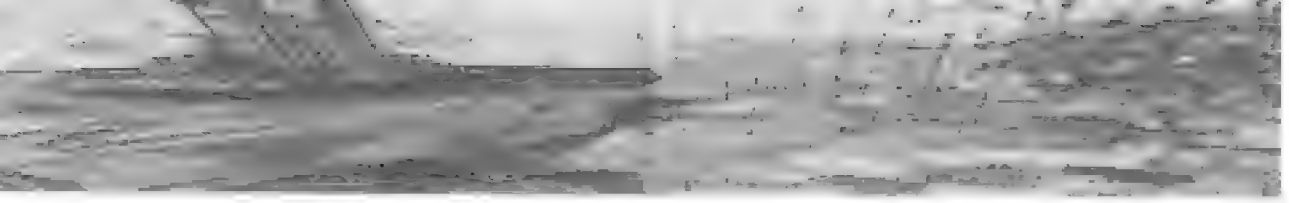
DINAB (pronounced die-nab or dee-in-a-bee in Matrix slang) stands for "decker in a box." The DINAB option gives a utility program a built-in Computer Skill, equal to the DINAB rating. On any of his actions, a decker may spend a Free Action and the utility runs itself.

For example, if a decker has the analyze, mirrors, and browse utilities all equipped with DINAB, he can spend a Free Action and two Simple Actions to execute all three utilities, even if each program is sent to perform an operation that requires a Complex Action.

Utilities cannot run two operations in the same action. In addition, the decker cannot use the program himself during any phase when it is running under DINAB.

The DINAB option degrades—loses 1 Rating Point—every time it *fails* a test, because opposing software can analyze the failure pattern, find gaps in the expert system's decision tree and exploit those gaps. For these purposes, a test is failed any time the DINAB option is defeated in a System Test opposed by the host/system. The DINAB option also degrades (per this definition of failure) whenever it fails to hit a target in cybercombat or the target reduces to zero all damage the DINAB inflicts.

Whenever a program or frame under DINAB control fails a test with results of all 1's, the utility or frame crashes. The decker must reload a fresh copy before he can use it again. A Swap



Memory operation restores degraded DINAB options and crashed DINAB-equipped programs and frames.

Frames can be equipped with DINAB, and smart frames *must* have this option.

A decker can override the DINAB option on any of his programs or frames and use his own Computer Skill in its place. In such cases, the decker must spend the type of action (Complex, Simple, Free) normally required for using the program.

LIMIT

Rating Modifier: –1

The limit option restricts the utility to a single type of target, such as deckers, IC programs, frames, or SKs. The program is useless against any other type of target.

Note that the limit option reduces the effective rating of the program and thus reduces its actual size, as well. For example, an Attack-6M (Limit: IC) program would have a Rating 5, and so its size would be $5^2 \times 3$, rather than $6^2 \times 3$.

ONE-SHOT

Rating Modifier: Special

The one-shot option turns the utility into a single-use program. After the utility executes once, it vanishes. To use the utility again, the decker must reload it with a Swap Memory operation.

The one-shot option reduces the actual size of the utility by 75 percent, but it increases the utility's design size by 50 percent.

A decker can carry multiple copies of one-shot programs in his deck's active memory, but tar baby and tar pit IC programs are extremely effective against that trick. Whenever a tar program trashes a utility carrying the one-shot option, it wipes out *all* copies of the program in active memory.

OPTIMIZATION

Rating Modifier: Special

The optimization option reduces the actual size of a program by 50 percent and increases its design size by 100 percent.

PENETRATION

Rating Modifier: +1

The penetration option defeats the shield defensive utility. However, against IC programs with the shift defensive utility, a penetration-equipped utility suffers a +2 target number penalty for tests against the IC target. That penalty is in addition to the –2 target number penalty afforded by the shield defensive utility.

The penetration and chaser options cannot be placed on the same utility.

SENSITIVE

Rating Modifier: Special

The sensitive option renders programs effective on only one manufacturer's mainframes. For example, utilities equipped with the Mitsuhama sensitive option work fine on computers manufactured by MCT but are useless on computers manufactured by anyone else.

Writing sensitive-equipped programs requires in-depth knowledge of the Matrix architecture of different computer systems. For the Computer Test required in the programming task, use an average of the programmer's ratings in Computer Skill and Computer Theory or its Matrix Theory concentration.

The sensitive option reduces a utility's actual size by 75 percent and increases its design size by 50 percent.

SKULK

Rating Modifier: +Stealth Rating

The skulk option enables a decker to eliminate or decrease additions to his security tally prompted by crashing IC programs (see **Intrusion Countermeasures**, p. 40). Whenever a decker uses a skulk-equipped program to crash an IC program, reduce the resulting security tally increase by the Skulk Rating.

SQUEEZE

Rating Modifier: –1

The squeeze option creates a self-compressed program. The option reduces the utility's actual size by 50 percent for purposes of uploading, as if it had been uploaded under the Compression utility. However, a squeezed program cannot be used until the decker spends a Complex Action to decompress it. Decompressing the program requires no test.

If a squeezed program is uploaded using the compression option, it receives the benefits of both options. The program's size is reduced by 75 percent. However, the decker must decompress the program twice—one Complex Action to undo the Compression option's effects, and a second Complex Action to undo the effects of the squeeze option.

The squeeze rating modifier affects the utility's design size only, not its actual size. Decks must have enough free active memory to accommodate the utility in its decompressed form.

TARGETING

Rating Modifier: +2

The targeting option provides a –2 target-number modifier for attacks made with targeting-equipped combat utilities.

COMMAND SETS

A command set consists of a simple program of orders that a decker can leave on a host to be executed at a later time. Writing a command set may require one or more Subsystem Tests, depending on the tasks the decker wants the host to perform. For example, if the decker wants the host to manipulate a remote device—such as opening a security door at a specific time or after receiving a specific signal—he needs to make a successful Slave Test. If he wants the host to print something out or erase a file, he must make a Files Test. If the decker wants the host to open a SAN at a given time, he must make an Access Test, and so on. The gamemaster determines the specific Subsystem Test needed for the command set (when in doubt, use a Control Test).

The deception utility reduces the target numbers for all these tests (see **Deception**, p. 96).

More complex sequences of action require the decker to write a program in advance and upload it. The design size of such programs is 1D6 x 20 Mp. After uploading the program, the decker must make a successful Control Test to load the program into the host.

Total any successes the host scores in opposing these Subsystem Tests. Divide the sum into 24. The result is the number of hours the program will continue to run on the host without being detected and purged. If the host scores no successes, the command set remains undetected for 48 hours.

FRAMES

Frames are combinations of decker-selected utilities, just as constructs are combinations of IC programs. Frames may be *dumb* or *smart*. Dumb frames are linked to the decker's persona and only exist as long as the controlling decker remains active on the host. Smart frames are capable of independent existence in the Matrix, whether their creator is logged on or not.

FRAME CORE

The frame core is the master control program for the frame. Think of it as a box that holds the other programs of the frame. The sizes of frame cores are determined using the same formula as for other programs: Frame Core Rating^2 x Frame Core Multiplier. The size multiplier for all dumb frame cores is 2; the multiplier is 3 for smart cores. Programmers must specify whether a core will be dumb or smart when writing the core.

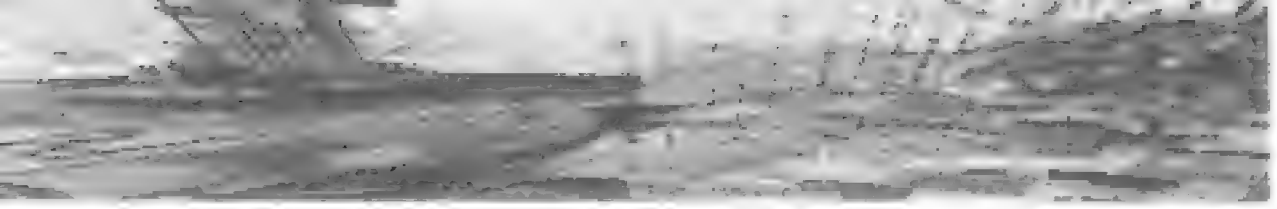
Frame cores may be equipped with any of the following options: DINAB, optimization, and squeeze.

Core Ratings may not exceed the programmer's Computer Skill x 1.5 (round fractions down). The following characteristics are derived from the Core Rating:

First, the combined ratings of the core's Bod, Evasion, Masking, and Sensor attributes may not exceed the Core Rating. Any attribute may be set to 0, if the designing decker desires.

The Core Rating is used in place of an MPCP Rating for any test requiring an MPCP Rating.

The Reaction attribute of a smart frame is equal to the frame's Core Rating.



Finally, the combined ratings of all programs (not including options) in the frame may not exceed the Core Rating. If Core Rating Points have been allocated to the frame's Initiative, use the reduced Core Rating for this purpose (*see* **Smart Frame Initiative**, below).

Deckers may re-use frame cores with different combinations of utility programs to make different frames. However, a core's attributes may not be rearranged. To make a frame with different attributes, the programmer must write a new frame core.

DINAB and Cores

All smart frame cores must be programmed with the DINAB option, which acts as the core's Computer Skill. The addition of the DINAB option increases the core's design rating by the DINAB Rating.

Dumb frames only execute programs on a decker's command. However, dumb cores may be fitted with the DINAB option, which may trigger one of the frame's programs on a given action.

For both smart and dumb cores, the DINAB option rating may not exceed the programmer's Computer Skill. The DINAB Rating is set when the core is programmed and cannot be altered later.

Smart Frame Initiative

Smart frames have their own Reaction and Initiative Ratings, separate from the decker's ratings.

An unmodified smart frame rolls 1D6 for Initiative. However, the programmer can increase a smart frame's Initiative dice by allocating part of its Core Rating to that purpose. Each point of Core Rating allocated provides 1 additional Initiative die. Note that whenever a frame's Core Rating is reduced, the ratings of the frame's programs must be reduced so that their combined total does not exceed the Core Rating.

Core Rating Points must be allocated to Initiative at the time the frame core is programmed and cannot be changed later.

FRAME LOADING

Once a programmer has created a frame core, he can load it with object code copies of any programs he has available. (The programs need not carry the Link routine required under the original **SR** Matrix rules.) These programs may be "plain vanilla" or equipped with options.

The combined ratings (not including Option Ratings) of these programs may not exceed the frame Core Rating. If Core Rating Points have been allocated to the frame's Initiative, use the reduced Core Rating for this purpose.

Programmers may not load "part" of a utility into a frame. For example, if the programmer has Deception-6, he cannot use it to give the frame a copy of Deception-3. Programs don't work that way. A partial copy of a program isn't smaller—it is incomplete and won't work.

Loading programs into a frame core is a task similar to programming. First, the programmer must calculate the loading rating of the program. The Loading Rating is never more than 2 determining the task period for loading the programs. To calculate the loading rate, combine the ratings of the programs and divide by 2. The result is the Loading Rating. Do not include the ratings of options or the frame core when calculating the Loading Rating.

Next, calculate the loading size:

Loading Rating^2 = loading size in Mp

Then, determine the loading base time:

Loading size x 2 = loading base time in days

Now, make a Computer Test against the average rating of the programs to be loaded. The Software concentration or Matrix Programming specialization of the Computer Skill may be substituted for this test. Use the number of successes to calculate the loading task period:

Loading base time ÷ Computer Test successes = task period in days

The actual size of a frame is the actual size of the frame core plus the actual size of all programs and options loaded on it.

Genie has a 12-point smart frame core with a DINAB-8 option. She allocates 2 Core Rating Points to the frame's Initiative, so she has 10 points left over for programs.

She wants a self-directing Matrix weapon, a killer drone program, so she decides to load Attack-6S and Cloak-4 programs on the frame.

That calculates the loading rating as follows:

$$(10 \div 2)^2 = 25$$

That gives her a loading base time of 50 days (25 x 2). She achieves 5 successes on her Computer Test, so the loading task period is 10 days (50 ÷ 5).

Genie's smart frame is a husky program when completed: 1,200 Mp for the core, 144 Mp for Attack-6S, 48 Mp for Cloak-4—for a total of 1,392 Mp.

RUNNING A FRAME

To run a frame, a decker first must log-on to a host and then upload the frame. As soon as the upload completes, the frame starts running. Compressed or squeezed frames must be decompressed before they can run.

DUMB FRAMES

Giving a command to a dumb frame is a Simple Action. This applies even if the frame program is used to perform a Complex Action. For example, if a Frame includes an analyze program, the decker could use the frame to perform an Analyze Security Complex Action as a Simple Action.

The frame then carries out its orders. A dumb frame cannot repeat an action. For example, a decker cannot tell a dumb frame to attack an IC program until it wins—he can only tell it to attack once. A second attack requires a second command to the frame.

If a decker logs off a host, any dumb frames he has on it crash. They do not follow the decker to other systems, except

Dumb frames may serve a number of purposes, including functioning as a decoy, [illegible] or carrying a weapon.

Decoy Frames

Any dumb frame can act as a combination scout "drone" and decoy. These so-called decoy frames can perform various Analyze operations and may be fitted with scanner utilities and used for Locate Decker operations. (See **System Operations**, p. 114, for further information.)

If a decker performs a Decoy operation on a host or grid system, the system directs all security measures against the decoy frame as long as the decker himself remains inactive. The decker uses his own Computer Skill to make tests for the frame, but all attribute-related scores depend on the decoy frame's ratings, not his own. Only the utilities loaded into the frame can be employed during the Decoy operation.

If the frame's actions create a security tally that triggers IC programs, the IC programs go after the decoy frame, not the decker's persona. Because the frame has the same datatrail as the decker, this doesn't help the decker's situation when facing trace IC.

Once a decoy frame crashes, the host system and any active IC programs react to subsequent actions by the decker per standard rules.

Event Triggers

Deckers can also create dumb frames to notify them of specific events in the host system. The decker must be present on the same system to receive the frame's message. This may require a Null operation (see **System Operations**, p. 117).

To serve as an event trigger, the frame needs a Sensor attribute and analyze and/or scan utilities. The attribute and utilities must have ratings equal to or exceeding half the host's Security Value. An analyze utility is needed to detect events caused by the host or its programs. The frame must contain a scanner utility to detect events caused by other deckers or legitimate users on the host.

Deckers may include any other utilities on the frame if additional capacity remains available.

Weapon Carriers

Deckers often load frames with offensive utilities and use these "weapon carriers" as auxiliary weapons in cybercombat. Such frames enable a decker to carry weapons that do not take up active memory or his icon bandwidth. Of course, if the frame crashes, the decker loses the programs. Each attack with a weapon-carrier frame requires a Simple Action.

SMART FRAMES

Smart frames can perform any action a dumb frame can. In addition, smart frames have their own "skill" (their DINAB Rating), and their own Response and Initiative ratings. The decker uses a Free Action to give the smart frame a basic order, and the frame then carries out that order on its own.

For example, a decker can order a smart frame equipped with combat utilities to find and destroy an icon. The frame has its own actions. In game terms, the player who controls the decker runs the frame as well, but the frame's actions do not require any attention from the decker and do not use up any of the character's actions.

UPGRADING

Deckers may upgrade any program described in this section—with the exception of command sets—by raising the program's rating. The programmer must have a copy of the program's source code to upgrade the program.

Upgrading programs is a programming task. To determine the base time for an upgrade, first determine the base time for the program as if creating the program from scratch (see **Programming**, p. 100). Then calculate the base time for writing the current program version. Then subtract the current version base time from the upgraded version base time. The result is the base time needed for the upgrade task.

Next, determine the task period. Begin by making a Computer Test against the rating of the upgraded program. Divide the upgrade task base time by the test successes. The result is the task period in days. The rest of the programming process proceeds per standard programming rules (see **Programming**, p. 100).

Deckers may also upgrade a program by adding options to the program, rather than increasing the program's rating.

BUYING PROGRAMS

Deckers can purchase any of the programs described in this section. A program's price is determined by its rating and design size. Option ratings do not affect these prices. Make Availability Tests using the Etiquette (Matrix) Skill.

All prices given represent the cost of object code and a copy of the source code. Reduce prices by 25 percent for object-code only programs.

Under the **Virtual Realities 2.0** rules, calculate prices for all programs—including personaware and utilities—using the formulas on the Program Prices Table. The distinctions for utility and persona programs in the original **SR** Matrix rules were based on the cost of the personaware chips. In the **VR 2.0** rules, the firmware price has been unbundled from the software price.

PROGRAM PRICES TABLE

Program Rating	Price (in nuyen)	Availability	Street Index
1–3	Size x 100	2/7 days	1
4–6	Size x 200	4/7 days	1.5
7–9	Size x 500	8/14 days	2
10+	Size x 1,000	16/30 days	3

SYSTEMS OPERATIONS

It's not enough to know what to do. You have to be able to do it one jump ahead of the IC, or you're gone.

—No Carrier decker

A system operation represents a command or series of commands that a decker gives to a host or grid to perform a specific task. Almost any task a decker may perform in cyberspace is expressed as a system operation. This section covers most of them. If a decker wants to perform some action not covered in the listed system operations, gamemasters may create their own system operations, using those described here as guidelines.

BERGTING 95

SYSTEM OPERATIONS

INTERROGATIONS

ORGOING OPERATIONS

MONITORED OPERATIONS

OPERATIONS DESCRIPTIONS

ANALYZE HOST

Test: Control
Utility: Analyze
Action: Complex

An Analyze Host operation enables a decker to analyze the ratings of a host. For each success in the Control Test, the decker chooses one of the following pieces of information, which the gamemaster supplies.

- the host's Security Rating (code and value)
- the rating of any one of the five subsystems on the host
- whether the apparent host is a VM (see **Virtual Machines**, p. 34 of **Grids and Hosts**)

Seven or more successes gain the decker all the available information about the host. Note that a decker must be on the host to run an Analyze Host operation on it—no sneak previews from the grid.

ANALYZE IC

Test: Control
Utility: Analyze
Action: Free

The Analyze IC operation enables a decker to identify any specific IC program that he has located (deckers may locate IC programs by performing Locate IC operations or by coming under attack from the IC program). If the Analyze IC operation succeeds, the decker learns the type and rating of the IC program and any options or defenses it carries. If the IC is a trace IC program, the decker also learns whether the trace program is in its hunting or location cycle. If the IC program is in its location cycle, the decker learns how many turns remain before it completes the cycle.

ANALYZE ICON

Test: Control
Utility: Analyze
Action: Free

The Analyze Icon operation scans any icon and identifies its general type: IC, persona, frame, application, and so on. The decker may reduce the Control Test target number by his Sensor Rating and any analyze utility he is running. However, the test target number may not drop below 2, regardless of the decker's combined Sensor and analyze utility ratings.

ANALYZE SECURITY

Test: Control
Utility: Analyze
Action: Simple

The Analyze Security operation tells the decker the current Security Rating of the host, the decker's security tally on the host (including any tally points accrued by the test for Analyze Security), and the host's alert status.

ANALYZE SUBSYSTEM

Test: Targeted Subsystem
Utility: Analyze
Action: Simple

An Analyze Subsystem operation identifies anything out of the ordinary about the targeted subsystem. The operation identifies the presence of trap doors, worms, scramble IC programs, or other defenses or system tricks present on the subsystem.

CONTROL SLAVE

Test: Slave
Utility: Spoof
Action: Complex

The Control Slave operation enables a decker to take control of a remote device controlled by the host's Slave subsystem. Remote devices range from simple automatic security doors and elevators to entire automated factories full of robotic assemblers.

If the decker is attempting to take control of a manufacturing or scientific process controlled by the Slave subsystem, he must make the Slave Test with the average of his ratings in Computer Skill and a B/R or Knowledge Skill that applies to the process. For example, a decker attempting to take control of an automated medical lab would make the test with an average of his Computer and Biotech skills, or Computer and Medicine skills, or Computer and some similar skill. Be strict about appropriate skills here, especially if the decker is attempting a task that might call for some obscure skill specialization.

The Control Slave operation is a monitored operation.

CRASH APPLICATION

Test: Appropriate Subsystem
Utility: Crash
Action: Simple

The Crash Application operation shuts down one of the host's application programs. Application programs include any legitimate program other than IC or decking programs. Applications take care of regular business on a host—you know, the boring stuff.

The Subsystem Test for the operation depends on the application targeted. If the decker is targeting an application program that controls a factory or a security installation, for example, the decker would make a Slave Test. The Crash Application operation may also be used to shut down a legitimate user's session, which is a function of the Files subsystem. If in doubt, the gamemaster can always ask the character to make a Control Test.

Crash Application operations have no effect on IC programs, frames, constructs, or other deckers.

CRASH HOST

Test: Control
Utility: Crash
Action: Complex

The Crash Host operation is the decker's "doomsday weapon." A successful Crash Host operation forces the host to shut down, dumping any hostile users as well as the decker himself (unless, of course, he first performs a Graceful Logoff operation).

SYSTEM OPERATIONS

Host systems do not shut down instantly. If a Crash Host operation succeeds, divide the decker's successes into 10 Combat Turns. The result is the number of turns that elapse before the host shuts down. At the end of each Combat Turn of this countdown, the host system tries to abort the process—make a Security Value Test against the decker's MPCP Rating. If the test succeeds, the shutdown process stops and the host stays up.

During the countdown to a crash, reduce the ratings of all IC programs running on the host by 2. These reductions reflect the drain on system resources caused when the host allocates resources to the shutdown instruction. All reduced ratings return to normal immediately if the crash is averted.

Note that a decker cannot abort a shutdown countdown caused by a Crash Host operation he has performed.

A shutdown wipes out all frames, command sets, and other programs left behind by the decker. The host computer reboots itself, which automatically cleans all its code, deletes security tallies and alerts, and restarts the host with all its basic ratings and values.

Typically, system administrators recognize decker-instigated crashes and increase security measures when restarting host systems.

DECOY

Test: Control
Utility: Mirrors
Action: Complex

The Decoy operation creates a "decoy" copy of the decker's icon. This decoy may draw the "attention" of proactive IC programs that target the decker. Record the number of successes the decker achieves on the Control Test. Whenever a proactive IC program attempts to attack the decker, roll 1D6. If the die roll result is less than the number of the decker's Control Test successes, the IC attacks the decoy instead of the decker's real icon. In the event of a tie, decoys fool IC programs.

Decoys have no special defenses and no damage resistance, so they take full damage when hit. Decoys disappear when their Condition Monitors fill up.

Note that decoys are not effective against trace IC.

Decoy operations may be used to lock the attention of IC programs on frames (see **Frames,** p. 105).

DECRYPT ACCESS

Test: Access
Utility: Decrypt
Action: Simple

The Decrypt Access operation defeats scramble IC programs guarding access to a host. IC programs on a scrambled SAN must be defeated with a Decrypt Access operation before a decker can perform a Log-On to Host operation on a scrambled SAN.

DECRYPT FILE

Test: Files
Utility: Decrypt
Action: Simple

The Decrypt File operation defeats scramble IC programs on a file. Deckers must perform successful Decrypt File operations on scrambled files before performing other operations on such files.

DECRYPT SLAVE

Test: Slave
Utility: Decrypt
Action: Simple

The Decrypt Slave operation defeats scramble IC programs on a Slave subsystem. A decker cannot make Slave Tests against a scrambled Slave subsystem until he has performed a successful Decrypt Slave operation on the subsystem.

DISINFECT

Test: Appropriate Subsystem
Utility: Disinfect
Action: Complex

The Disinfect operation destroys worm virus programs on a specific subsystem. The decker makes the operation test against the targeted subsystem—if a host's Files subsystem has worm programs, he makes a Files Test, for example.

DOWNLOAD DATA

Test: Files
Utility: Read/Write
Action: Simple

The Download Data operation copies a file from the host to the decker's cyberdeck. The data moves at whatever I/O bandwidth the decker has allocated. It may be transferred to active memory, storage memory, or even off-line storage.

The Download Data operation is an ongoing operation that continues until the data transfer is completed, the decker logs off or is crashed, or the decker terminates the download early. If the operation is terminated before the transfer is completed, it creates a corrupted copy of the file, which is worthless.

However, if the file contains information that is particularly important to an adventure, the gamemaster may allow partially completed downloads to produce damaged, yet readable file copies. The base time to reconstruct a damaged file is calculated as follows:

(full file size in Mp divided by amount of data downloaded in Mp) x 2.

The result is in days. Once a damaged file is reconstructed, the gamemaster determines whether the file contains the pertinent information by dividing the size of the downloaded file by the full size of the original file.

For example, if a decker manages to copy 10 Mp of a 100 Mp file, the base time for reconstructing the file is (100/10) x 2, or 20 days. Dividing 10 by 100 yields .10, so there is a 10 percent chance that the copied file contains the pertinent information.

DUMP LOG

Test: Control
Utility: Validate
Action: Complex

The Dump Log operation is an interrogation operation that enables a decker to open and read host-access logs. The logs record the identities of legal users who accessed the system, which files they accessed, which programs they ran, and so on. System logs also note any intrusions or suspected intrusions that the host observed—basically, any decker runs that triggered a security response. However, intrusions may also show up on system logs as fatal program aborts, hardware glitches, and other random system errors—particularly if they are successful, sneaky runs.

If information on a system log is crucial to an adventure, the gamemaster should prepare the log in advance. If log entries are not particularly important to an adventure, the gamemaster can improvise them.

Deckers may also download system logs onto their cyberdecks for later analysis or documentation. The size of a log covering a 24-hour period is calculated by multiplying the host's log size multiplier by 100. The result is in Mp

LOG SIZE MULTIPLIERS

Host Intrusion Difficulty	Log Size Multiplier
Easy	2D6 x 5
Average	2D6 x 2
Hard	2D6

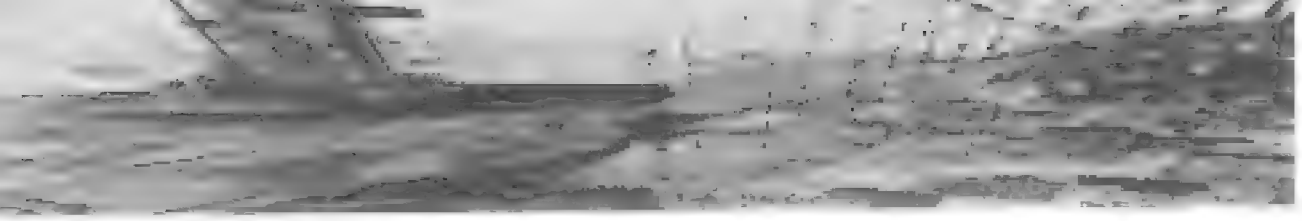
EDIT FILE

Test: Files

Utility: Read/Write

Action: Simple

The Edit File operation enables a decker to create, change or erase a datafile. Small changes (approximately one line of print or the equivalent of one short form of some kind) can be made directly on the host by performing this operation. Before



replacing larger amounts of data, the decker must prepare the new material off-line first, then upload it and perform an Edit File operation to insert it into the file. Any uploaded information may be inserted with a single Edit File operation, regardless of its size.

A successful Files Test creates new files. Because these files do not have legal headers, the operating system may erase them at any time.

Deckers also can use Edit File operations to make copies of files on the same host. Thus, deckers can copy a file from a particularly secure datastore, stash it on a less secure part of the same host and retrieve it at a later time. When using the Edit File operation in this manner, a decker must make two Subsystem Tests. The first test is a Files Test. The second test is made against the subsystem that controls the location where the decker hid the copied file.

After altering, inserting, or deleting a file, a decker must make a Computer Test against a target number equal to the host's Files Rating x 2 to determine if the host notices his work. The decker may add his deck's Masking Rating to his Computer Skill Rating for this test. If the test succeeds, the host does not notice the changes. If the test fails, it does.

Deckers may make the same Computer (Files Rating x 2) test to determine whether a host or another decker has tampered with a file. In this case, the decker may add his deck's Sensor Rating to his Computer Skill for the test. If the test succeeds, the decker recognizes signs of tampering in the file.

Keep in mind that any time a decker deletes a host file, the gamemaster must consider the impact on the adventure in progress and decide whether back-up copies of the file exist.

EDIT SLAVE

Test: Slave
Utilities: Spoof
Action: Complex

The Edit Slave operation is a monitored operation that enables a decker to modify data sent to or received from a remote device controlled by the host's Slave subsystem. For example, a decker could perform Edit Slave operations to alter video signals or sensor readings from a computer-controlled security system or alter readings being sent to a console or simulator.

GRACEFUL LOGOFF

Test: Access
Utility: Deception
Action: Complex

The Graceful Logoff operation enables a decker to disconnect from a host and the LTG where he logged on to the grid without experiencing dump shock.

In addition, a successful Graceful Logoff operation clears all traces of the decker and his actions from the security and memory systems of the host. The operation also leaves the decker invulnerable to trace IC programs after he has disconnected (see **Trace IC**, p. 45 of **Intrusion Countermeasures**).

INVALIDATE PASSCODE

Test: Control
Utility: Validate
Action: Complex

The Invalidate Passcode operation enables a decker to erase a single passcode from a host's security tables. A decker may also use the operation to trash the host's entire passcode list so that no legitimate users can get on using passcodes. This forces corp deckers to log-on to the host by illegal means and puts them on a more even footing with the intruding decker. When a decker attempts to wipe out an entire passcode list, add a +4 modifier to the target number for the decker's Control Test.

LOCATE ACCESS NODE

Test: Index
Utility: Browse
Action: Complex

The Locate Access Node operation is "directory assistance" Sixth World-style. It enables a decker to find the codes of LTGs that provide access to the hosts he wants. The operation also lets him locate commcodes for regular trid calls.

Modify the target number for the Index Test according to the decker's stated goal. For example, if all he knows is a company or individual name—"I'm looking for a Mitsuhama system"—apply a +1 modifier to the target number. If his goal is a bit more specific—"I'm looking for a Mitsuhama public-relations system"—do not modify the target number. If he has a definite, specific goal—"I'm looking for the Mitsuhama public-relations system out of the Mitsu office in Bellevue on LTG 5209"—apply a –1 modifier to the target number.

Once a decker has located an LTG code, he need not repeat the Locate Access Node operation to find the host in future—unless its owners change the address, of course.

The Locate Access Node operation is an interrogation operation.

LOCATE DECKER

Test: Index
Utility: Scanner
Action: Complex

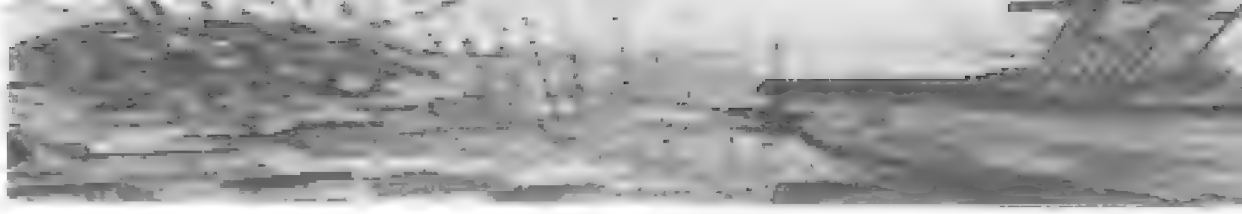
The Locate Decker operation is a two-step process. The decker makes the standard System Test and then a Sensor Test. The decker locates any other deckers whose Masking attributes are equal to or lower than his Sensor Test results. In addition, he knows if they log off or jack out. If a targeted decker is running a sleaze utility, add its rating to the targeted decker's Masking Rating to determine if the testing decker locates the target decker.

Located deckers may break contact by maneuvering (see **Combat Maneuvers**, p. 121).

Friendly deckers who wish to make their presences known to each other may do so automatically.

LOCATE FRAME

Test: Index
Utility: Scanner
Action: Complex



The Locate Frame operation locates any smart frames or SKs running on the host. The operation is not effective against IC constructs because the host protects them from application indexing. However, constructs may be located with the Locate IC operation (see **Locate IC**, below).

LOCATE FILE

Test: Index
Utility: Browse
Action: Complex

The Locate File operation is an interrogation operation that searches for specific datafiles. To use the operation, the decker must have some idea of what he is looking for—"valuable data" is not enough. In fact, that is a different operation (see **Locate Paydata**).

If the operation succeeds, the decker knows the system location of the file.

Distributed databases can make for a real scavenger hunt through the Matrix. Here's a simple example: Host A contains one master copy of a database; Host B contains subordinate files that point back to this master, perhaps through a series of two or three other hosts. At the level of computer access involved in decking, a decker must get to the master database to extract or edit information. So a decker on Host B performs a Locate File operation and finds the reference he is looking for. He opens the file to do a Download Data operation and discovers it is actually a subordinate file pointing him to another host. He switches to that host—the subordinate files contain the LTG address of the next computer in line—and goes through the process again, only to find that he has to go to yet another host. The gamemaster can roll LDG to determine how many of these links exist in a given chain of files.

Cybersushi is on a Green-6 host with Index-11. Sushi's Computer Skill is 6, and he's running a Browse-5 utility. During the present adventure, Sushi's chummers came across a reference to a project at Nasticorp that might endanger their friends in an ork tribal squat over in the Barrens. So Sushi broke into this low-level computer at Nasticorp to look for more details. Sushi and the gamemaster might engage in a dialog that goes something like this:

Sushi: OK, I am looking for any files with references to the Redmond orks or projects in the Barrens.
Gamemaster: That's kind of broad. OK, roll away.
(The player makes the operation Index Test. He rolls 6D6 (Computer Skill) against a Target Number 7 (Index Rating 11 – Browse Rating 5 + 1 target modifier for over-broad question). The gamemaster makes an opposed Security Test for the host against the player's Masking attribute. The player achieves 3 successes, the Security Test nets 2. Sushi emerges with 1 success.)
Gamemaster: There's a couple of references that look promising.
Sushi: Any of them talking about project schedules, budget, anything to do with specific plans?
Gamemaster: Ah—now that's useful. Let's see.
(Sushi and gamemaster repeat the Index Test and Security Test. Sushi's question is more specific, so the gamemaster applies a –1 target modifier to the Index Test. Sushi achieves 4 successes and the Security Test nets only 1. That leaves Sushi with a total of 4 successes for the operation.)
Gamemaster: Right—the keyword seems to be Project Nightwalker. Something in some e-mail in the secure datafiles.
Player: Great. Find the message file, I want to read it.

At this point, the search for a specific file is really enough—and any successes by Sushi will hit 5 total successes anyway. The gamemaster has already decided that this host is not secure enough to contain the full details of Nasticorp's incredibly evil scheme, but the e-mail contains an origin address on a tougher host, where they keep the real paydata. That host also contains the names of responsible individuals on the Nasticorp roster who can be located through the personnel databases and invited to unburden their consciences to Sushi's muscular friends back in the physical world.

LOCATE IC

Test: Index
Utility: Analyze
Action: Complex

The Locate IC operation follows the same rules as the Locate Decker operation. However, the decker automatically locates the IC program(s) if his System Test succeeds—he need not make a Sensor Test. The IC program(s) remains located unless it maneuvers to evade detection.

LOCATE PAYDATA

Test: Index
Utility: Evaluate
Action: Complex

The Locate Paydata operation is an interrogation operation that enables a decker to search a host for marketable data. For each net success the decker achieves on the operation Index Test, the operation locates 1 point of paydata in the host (the gamemaster assigns a paydata volume to every host—see **Mapping Matrices**, p. 65). The operation continues until the decker stops performing it or locates all the paydata on the host.

Once located, paydata must be downloaded in its entirety. If a file contains 20 Mp, all 20 Mp must be downloaded or the swag is useless. Paydata is priced per standard **SR** rules (see p. 188, **SRII**).

LOCATE SLAVE

Test: Index
Utility: Analyze
Action: Complex

The Locate Slave operation follows the same rules as the Locate File operation (see **Locate File**). The operation is used to determine system addresses for specific remote devices controlled by the host. A vague inquiry would be, "Find all the security cameras controlled by this computer." A very specific inquiry would be, "Find the camera that monitors the eastern stairwell door on the third floor."

On the other hand, most hosts are likely to control far fewer slaves than files, so a decker need achieve only 3 successes on his Index Test to locate the desired system. After locating the slave node, a decker can perform operations such as Command Slave and Read or Write Slave for that node.

LOGON TO HOST

Test: Access
Utility: Deception
Action: Complex

The Logon to Host operation simply consists of an opposed Access Test against the Access Rating of the host. Apply any appropriate modifiers to the test and remember to begin counting the decker's security tally with any successes on the host's Security Test.

The decker will not know the host's Access Rating until he takes his first crack at the log-on. At that point, the rating will be all too evident. No need to make it a big secret.

Once the Access Test succeeds, the virtual landscape of the computer becomes visible. If the decker is accessing a host directly through a work station, his icon may appear in scenery corresponding to an I/O port (see p. 166, **SR II**). Of course, with the preponderance of sculpted systems in the Matrix today, the scene may be something quite unique.

Gaining access to a host through a remote device means the decker's icon enters the host at a slave controller, and access through the console puts the decker in the heart of the CPU node. These virtual locations do not affect the decker's tests, but are provided as guidelines when describing the scene to the decker.

Once on the host, the decker can perform all of the operations that take care of biz—analyzing the host and its defenses, looking for paydata, fiddling files, the whole bit.

LOGON TO LTG

Test: Access
Utility: Deception
Action: Complex

The Logon to LTG operation simply consists of an opposed Access Test against the Access Rating of the LTG. Apply any modifiers for the jackpoint and bandwidth (see **Jackpoints**, p. 28, and **Bandwidth**, p. 90) and remember to begin counting the decker's security tally on the grid with any successes from the grid's Security Test. If the decker loses the test, his log-on attempt fails. The decker can try again, but his security tally remains on the grid for some time (typically, public LTGs "remember" unauthorized access attempts for 1D3 x 5 minutes). The decker also can switch to a different jackpoint before his next log-on attempt—which means the grid will have to start a new security tally for him.

Once the decker succeeds in the opposed Access Test, his icon appears in the familiar virtual landscape of the LTG. From an LTG, the decker can log on to the RTG that controls the LTG, or on to the PLTG attached to this LTG (if he knows its address), or to any host attached to the LTG (if he knows the host's address).

LOGON TO RTG

Test: Access
Utility: Deception
Action: Complex

Once he has logged on to an LTG, a decker can log on to its controlling RTG by performing a Logon to RTG operation. He *must* perform this operation if he wants to connect to a different LTG on the same RTG, or to a different RTG altogether.

To perform the operation, the decker makes an Access Test against the RTG's Access Rating. Remember that "local" changes in the LTG system ratings (see p. 26) will not carry over to the RTG. The gamemaster can assign temporary changes to the RTG ratings, of course. If a decker is accessing a grid such as Germany's, keep in mind that the RTG can have different ratings from its dependent LTGs, and use the RTG's Access Rating for the test.

Remember that an RTG maintains the same security tally for all a decker's activities on any LTGs it controls, as well as the RTG itself.

Once the decker is on the RTG, he can perform a Logon to LTG to reach any LTG attached to the RTG, or a Logon to RTG operation to reach any other RTG in the world. The decker can also perform Search RTG and Trace/Tap Call operations.

MAKE COMCALL

Test: Files
Utility: Commlink
Action: Complex

A decker on an RTG can make a call to any commcode on an LTG controlled by that RTG by performing a Make Comcall operation. But this operation is not just a way to beat payphones. The decker can make a call, then move to another RTG and make a call to a number under its control, then link the two together. A decker can move to multiple RTGs in this manner, building a secure conference call. Each call the decker links together requires another opposed Files Test.

Deckers can be licensed to provide this service on various RTGs. This means they get a passcode from the RTG vendor that authorizes this operation. In that case, no tests are needed to make the calls or link them together. This license is usually restricted to corporate deckers.

Treat any trace routines run by the grid against the call as trace IC. The decker's Trace Factor is the Trace Factor for the call. All the tricks that work against trace IC, such as Redirect Datatrail operations, can be used to make the call more secure.

The Trace Comcall operation cannot trace this kind of call, but another decker could use the track utility to try to locate the commcodes involved in the call. (See **Tap Comcall**, p. 118, for further information.)

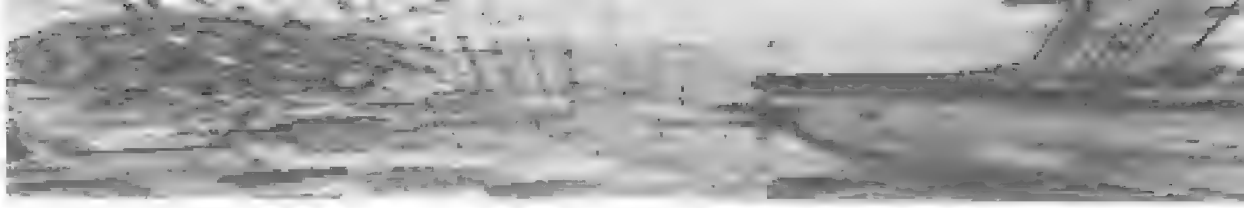
In addition, the decker can detect any taps or tracers on the commlines by making a Sensor (Device Rating) Test. He can neutralize them with an Evasion (Device Rating) Test.

Deckers often arrange secure calls, or prepare frames that can build them, as a profitable sideline. The typical charge is 100 nuyen per caller per minute.

The Make Comcall operation is a monitored operation.

MONITOR SLAVE

Test: Slave
Utility: Spoof
Action: Simple



The Monitor Slave operation is a monitored operation that enables the decker to read data transmitted by a remote device. He can listen to signals from audio pickups, watch feeds from security cameras, examine readouts on a computerized medical scanner hooked up to the host, and so on. As long as he maintains the operation, he receives constant updates from the device.

NULL OPERATION

Test: Control
Utility: Deception
Action: Complex

The gamemaster may require a decker to perform one or more Null operations whenever the decker is waiting for something to happen, whether it is an event on the Matrix, the end of an ongoing operation, or something else that involves hanging around in cyberspace without making System Tests. The gamemaster may also call for a Null operation if a decker is doing anything that requires actions but not System Tests, such as maintaining an Edit Slave. The gamemaster may secretly perform these operations on behalf of the decker, if he so desires.

Use the host's base Security Value for its opposed Security Test if the decker is inactive on the host for less than 10 seconds. If the period of inactivity is less than a minute but more than 10 seconds, apply a +1 modifier to the Security Value. If the period is less than an hour but more than a minute, apply a +2 modifier. If the period is less than 12 hours but more than 1 hour, apply a +4 modifier; apply an additional +1 modifier for every additional 12 hours. The gamemaster may set an upper limit on the inactive period, depending on the decker's ability to avoid falling asleep in the event of such implausibly long times.

Selena begins a download that will complete in 12 seconds. She has nothing else she wants to do, so she waits. The gamemaster requires a Null operation and adds +1 to the host's Security Value.

On a different run, Selena is waiting for a ground team to get through a locked door (don't you just hate those manual doors with no computer overrides on the lock?). The gamemaster determines that the maglock penetration task will take 7 minutes. He also performs a secret Null operation for Selena and applies a +2 modifier to the host's Security Value for the opposed Security Test. The Security Test yields several successes that push the security tally past its next trigger step, which triggers a truly unpleasant IC program. The gamemaster decides to have the IC show up 3 minutes into the waiting period.

If the Security Test raises the decker's security tally and triggers a response from the host, the gamemaster should activate the response as he sees fit, perhaps after a percentage interval of the decker's period of inactivity.

REDIRECT DATATRAIL

Test: Control
Utility: Camo
Action: Complex

Deckers may perform Redirect Datatrail operations on any grid. Reduce the target number for the opposing Security Test by the decker's trace modifier (see **Jackpoints**, p. 28 in **Grids and Hosts**).

Deckers can leave only one redirect on a grid. For each grid where a decker leaves a redirect, reduce his trace factor by 1. This reduction does not reduce the bandwidth modifier's effects on the System Test for further Redirect Datatrail operations. See **Trace IC**, p. 45, for more details.

RETRAIN

Test: Access
Utility: Commlink
Action: Free

The Retrain operation enables a decker to make his I/O bandwidth wider or narrower. For the Access Test, use the Access Rating of the system where the decker's icon is active. The target number modifiers and effects on the Trace Factor are determined by the decker's Jackpoint (see **Jackpoints**, p. 28). Deckers may perform Retrain operations and allocate more or less I/O bandwidth at any time, even while loading data.

SCAN ICON

Test: Special
Utility: Scanner
Action: Simple

The Scan Icon operation enables a decker to gain information about any decker, frame, or SK he has located.

The decker makes a Computer Test against the Masking Rating of the targeted icon. If the targeted icon is running a sleaze utility, subtract the utility's rating from the scanning decker's scanner utility rating. Reduce the target number by the difference. If the sleaze program has a higher rating than the scanner program, increase the target number by the difference between the sleaze and scanner ratings.

For each success the decker achieves on his Computer Test he may choose one of the following pieces of information:

- MPCP Rating of the icon
- Any Persona Rating of the icon
- Response Increase Rating of the icon

Identifying an icon requires an Analyze Icon operation directed at the icon.

SWAP MEMORY

Test: None
Utility: None
Action: Simple

The Swap Memory operation enables a decker to load a new utility program into his deck's active memory and then upload it to his online icon.

Loading the utility to active memory is a Simple Action—the decker simply tells the deck to do it. If his deck does not have enough active memory or free icon bandwidth to hold the new program, he must first spend a Free Action to unload a program from his deck's active memory. No tests are required for these actions. (New-generation cyberdecks have virtually unlimited bus speeds between storage and active memory, so the Load Speed Rating from the original **SR** Matrix rules does not apply.)

Once the utility is in active memory, it automatically starts uploading to the icon. See **Ongoing Operations**, p. 110, for details on just when the utility will be available to the persona.

Squeezed or Compressed utilities must be decompressed before they can be used, which requires a Complex Action.

TAP COMCALL

Test: Special
Utility: Commlink
Action: Complex

The Tap Commcall operation enables deckers to locate active commcodes on an LTG, trace and tap commcalls. Deckers use the commlink utility for all the tests required during this monitored operation.

To locate active commcodes on an LTG, a decker must be active on an RTG that controls the LTG. The decker makes an Index Test to determine if any commcodes on the LTG are sending or receiving a call. If the decker finds a commcode in use, he can make a Control Test to trace the call to its origin or destination. If multiple participants are making a conference call from the commcode, each success on the test reveals the commcode of one participant.

If the call was set up by another decker using the Make Comcall operation, then the Control Test locates the decker controlling the call. The decker trying to trace the call must move to the calling decker's RTG and use a track utility against him. The track utility locates all the other commcodes involved in the call.

If the decker wants to tap the call and record it in his deck's storage memory or offline storage, he must make a Files Test. Each minute of recording occupies 1 Mp of storage.

If the comm connection is scrambled, the decker must decrypt it by making an unopposed Computer Test against the rating of the Data Encryption System on the comm line. The decrypt utility reduces the target number. The number of phones and encryption devices involved in the call have no effect on the decker's target number. If the first decryption test fails, the decker can try again; apply a +2 modifier to the target number for each additional test. None of the tests against scrambling affect the decker's security tally on the RTG.

If any of the phones involved in the call is equipped with a dataline scanner, the decker may set that off even if he doesn't trigger an alert on the RTG. Dataline scanners (p. 243, **SRII**) have a rating from 1 to 10. Once the decker establishes his tap, the decker must make a Computer Test against the scanner's rating (the commlink utility reduces this target number). If the decker achieves a single success, he has synchronized the tiny fluctuations in signal integrity caused by his tap and fooled the scanner. If multiple dataline scanners are in use on the call, use the highest rating among them for the test. In this case, the decker needs 1 success for each scanner involved, or some of the devices detect the tap (presumably the more expensive ones). Whether this test succeeds or fails, the result does not affect the decker's security tally on the RTG.

Once a decker has tapped and unscrambled a call, he can listen in and record, as he wishes. When the call terminates, he can stay locked on to any of the commcodes, either the original one that he was after or any that he traced. He can then attempt to monitor any subsequent calls placed from the commcode. If the decker is monitoring a code that he has already tapped, he does not need to make Index Tests to determine when it becomes active again. He does need to make new tests to trace or tap the new calls and defeat any dataline scanners or encryption on the calls.

UPLOAD DATA

Test: Files
Utility: Read/Write
Action: Simple

The Upload Data operation is an ongoing operation that enables a decker to transmit data from his cyberdeck to the Matrix. This data comes directly from the deck's storage memory and does not affect active memory. (For large uploads, see **Bandwidth**, p. 90, for the rules governing upload times.)

If the decker is creating a new file on the host, the file is written automatically. If the decker intends to modify an existing file on the host—adding false records to a database, for example—the decker must perform an Edit File operation after the upload is finished.

Note that the Upload Data operation is not used to upload utilities. The Swap Memory operation handles that function.

VALIDATE PASSCODE

Test: Control
Utility: Validate
Action: Complex

The Validate Passcode operation enables a decker to plant a fake passcode on a host. (Actually, "fake" is a misnomer, because such passcodes are perfectly legitimate). Once logged on to a system, the decker can start doing any of his usual operations. For example, the decker can open accounts on mainframes where he is stealing programming time, swiping resources from the corps while he busily perfects the tools he will use against them.

The decker makes a Control Test to validate his passcode. Apply a +2 modifier to the target number to validate a superuser passcode and a +6 modifier to validate a supervisor passcode (see **Passcodes**, p. 35, for further information).

After the decker makes the test, the gamemaster rolls 1D6 and multiplies the result by the number of successes from the test. The result is the number of days the passcode remains effective, unless the decker does something to compromise it first. Any time the decker uses the passcode on a run that raises a host to active alert status, the host flags the passcode as illegal. Once it recognizes a passcode as illegal, the host deletes it.

CYBERCOMBAT

There's nothing like a netfight. Everything is true. Nothing is forbidden.

o

-Hassan the Assassin, decker

Deckers, IC, SKs (see **Artificial Intelligences**, p. 140), and frames can engage in cybercombat. Icons representing system resources and applications cannot attack or be attacked this way. Deckers may use system operations to engage these icons

CYBERCOMBAT SEQUENCE

Cybercombat in Matrix 2.0 follows much the same sequence as standard **SR** combat. First, the opposing characters and icons determine Initiative, then declare and resolve their actions.

Combat Turns in the Matrix are 3 seconds long, the same as standard **Shadowrun** Combat Turns. (Though 3 seconds is an endlessly long time in actual computer use, the 3-second turn enables gamemasters to more easily synchronize Matrix actions and physical actions elsewhere in the game.) Resolve any simultaneous actions in a Combat Phase in the following order: astral actions, Matrix actions, and physical actions, with the following exceptions.

If a decker declares a Delayed Action (p. 80, **SRII**) to wait for something to happen in the physical world, resolve his action along with any physical actions of the Combat Phase. For example, John has an action available on Combat Phase 10 of a turn. He delays his action, waiting for his meat colleagues to get to a security door. An IC program jumps John during Combat Phase 8. The IC program resolves its action along with other Matrix actions during Combat Phase 8. John must wait to resolve his action along with the physical actions of the phase. So think hard about delaying, netheads—combat usually goes to the swiftest.

Deckers who are communicating directly by voice or datascreen with the meatworld resolve their actions along with the physical actions of a Combat Phase as well, even if they have actions available before that time. This penalty does not apply to communications via hitcher electrodes, with someone "along for the ride" on the decker's own terminal, or to communications with other personas on the system.

SUBJECTIVE TIME

Keep in mind that characters experience time subjectively in the Matrix. The apparent time spent in moving through the Matrix environment may be much longer than the actual game time used to perform actions. For example, a decker who makes a single Index Test as part of a system operation may experience the test as a walk down a long hallway lined with books, which ends when he finds the icon he wants. He may feel as if he has spent several minutes or even hours searching for the item, when actually only a few seconds of game time elapse.

INITIATIVE

Any icons with a Reaction attribute roll for Initiative per standard **SR** rules (p. 79, **SRII**).

DECKER INITIATIVE

The Initiative of a decker is based on the Reaction attribute of the decker's persona. If his Reaction has no enhancements, the decker rolls 1D6 and adds the result to his Reaction to determine Initiative.

Reality filters, response-increase circuitry, and running on hot decks by DNI all boost a decker's Initiative (see **Cyberdecks**, p. 81, for additional information on these items).

Wired reflexes, magical augmentation, vehicle-control rigs, and other enhancements that increase the Reaction attribute of a decker's physical body do not affect Initiative in the Matrix.

Initiative and the Physical World

If a decker is engaged in direct communication with the physical world via voice, print, datascreen, and so on, he loses 1D6 of Initiative until he drops the communications link. This penalty does not apply to communications with a meathead via hitcher electrodes, nor does it apply to users with tortoises.

IC INITIATIVE

When calculating the Initiative of an IC program, use the formulas supplied in the IC Initiative Table. For IC constructs, use the rating of the lowest-rated IC program in the construct. For IC programs arranged in a party cluster, determine Initiative separately for each program.

If the Security Code of the host changes during the course of a fight, the Initiative of IC programs on the host changes accordingly.

IC INITIATIVE TABLE

Host Security Code	Initiative
Blue	1D6 + IC Rating
Green	2D6 + IC Rating
Orange	3D6 + IC Rating
Red	4D6 + IC Rating

OTHER PROGRAMS

Smart frames, SK's and other autonomous expert systems have Reaction attributes equal to their Core Ratings (see **Frames**, p. 104 and **Artificial Intelligences**, p. 138, for details). Roll 1D6 for Initiative for such systems unless they have response enhancements.

When determining Initiative for any other programs, assume they have Reaction attributes equal to their ratings and roll 1D6 for Initiative. For programs without ratings, use a flat value of 6 as a Reaction attribute for the calculation.

ACTIONS

An icon may take one Free Action, and either two Simple Actions or one Complex Action during a Combat Phase.

Besides the actions listed here, deckers may perform system operations. These are listed in **System Operations**, p. 111, and the **System Operations Table**, p. 161. Deckers must perform specific actions to execute each operation.

FREE ACTIONS

Free Actions are simple, almost automatic actions that require hardly any effort to complete.

Delay Action

Deckers may delay actions per standard **SRII** rules (see pp. 80–81, **SRII**). See **Cybercombat Sequence**, p. 120, for rules on resolving delayed actions.

Speak a Word

Standard **SRII** rules apply for verbal communications (see p. 81, **SRII**). Direct communications with characters in the physical world affect the decker's Initiative as noted in **Cybercombat Sequence**.

Deckers may also "buffer" messages. When buffering a message, the decker may write a message up to 100 words long and give it to any character linked to the decker with hitcher electrodes, radiolink, datascreen, or other device. The second character may also operate an icon the decker can "see." The second character receives the buffered message at the end of the Combat Turn.

Terminate Download / Upload

A decker can suspend or terminate a data transmission at any time.

Unload Program

The decker can remove a program from his deck's active memory at any time. Removing a program releases active memory and Icon bandwidth for a Swap Memory operation.

Unsuppress IC

A decker can release IC from suppression and restore the points being used to suppress the IC to his Detection Factor at any time. If the suppression was keeping crashed IC from increasing the decker's security tally, the tally increases immediately. If the suppression was suspending the IC's actions, it becomes active immediately. (See **Suppressing IC**, p. 40 in **Intrusion Countermeasures** for further information.)

SIMPLE ACTIONS

A Simple Action requires a bit more concentration to perform than a Free Action, and may be slightly more complex.

Attack

A decker may attack an Icon with any offensive utility loaded in his deck. IC programs and other Icons may attack according to their programming.

Combat Maneuvers

Deckers and icons may engage in any listed combat maneuvers as a Simple Action (see **Combat Maneuvers**, p. 121).

Improvise Attack

Deckers can use Simple Actions to create attack programs "on the fly" (see **Improvised Attacks**, p. 123).

COMPLEX ACTIONS

Performing a Complex Action requires intense concentration on only that task.

Change Deck Mode

Changing mode (see **Deck Modes**, p. 74 in **Deckers**) is a Complex Action.

NON-COMBAT ACTIONS

For non-combat actions, deckers need not roll for Initiative. Instead, divide the decker's Reaction attribute by 10 (round up the result). The result is the number of actions the decker may perform during each 3-second game turn. Add 1 action for every Initiative die the decker receives in combat beyond the standard 1D6.

During each available action the decker can perform one Free Action, and either one Complex Action or two Simple Actions. The decker can perform another Free Action in place of either or both of the Simple Actions.

For example, a decker with 2 actions per turn could perform a Logon to Host operation (a Complex Action) and a Remain operation on his I/O bandwidth (a Free Action) on his first action phase. On the next action, he could perform an Analyze Host operation (a Complex Action).

Reactive IC programs that perform tasks at the end of a Combat Turn act after all deckers have performed their allotted actions for a turn.

INITIATING COMBAT

A decker may initiate combat with any Icon that is "visible" or any icon he has located. Any icon that attacks a decker automatically becomes visible, unless it successfully performs a combat maneuver to conceal itself (see **Combat Maneuvers**). Deckers may locate reactive IC programs by performing the appropriate Analyze operations, and they may locate other deckers by performing Locate Decker operations (see **System Operations**, p. 114). In addition, other deckers may make themselves visible to a decker by communicating with him, attacking him, or deliberately revealing themselves in some other way. Once a decker is "visible" or located, he remains so unless he makes a successful combat maneuver to evade detection.

Proactive IC programs may initiate combat with any decker whose security tally triggers the IC. The IC program can continue to attack until the decker gets off the system or evades detection with a combat maneuver.

COMBAT MANEUVERS

Deckers, proactive IC, smart frames, and any other self-directed icons can perform combat maneuvers to avoid detection, parry attacks, or gain a position to make more accurate attacks. All combat maneuvers are Simple Actions.

Each combat maneuver requires an opposed test between the icon performing the maneuver and the icon opposing the maneuver. The maneuvering icon makes an Evasion Test. If the maneuvering icon is an IC program, the gamemaster makes a Security Test for the program, using the host's Security Value. (Non-IC programs that lack Evasion attributes cannot perform combat maneuvers.)

The opposing icon makes a Sensor Test. If the maneuvering icon is an IC program, the gamemaster makes a Security Test for the icon using the host's Security Value. (Non-IC programs that lack Sensor attributes cannot oppose maneuvers actively. However, if the maneuvering icon achieves no successes on its test, the maneuver still fails.)

If the maneuvering icon achieves more successes, note the net successes—the number of successes that exceed the opposing test successes. The net successes determine how successfully the icon maneuvered. If the opposing icon achieved an equal or greater number of successes, the combat maneuver fails.

If the maneuvering icon has a cloak utility, reduce that icon's target number by the Utility Rating. If the opposing icon has a lock-on utility, reduce its target number by the Utility Rating.

EVADE DETECTION

An icon may perform an evade-detection maneuver to evade an opposing icon that has detected it.

A decker must use the Analyze Icon operation to re-detect an IC program that has evaded him with the maneuver. To re-detect personas, frames, or SKs that have evaded him, a decker must use a Locate Decker operation.

IC programs re-detect evading icons in a number of Combat Turns equal to the net successes of the icon's Evasion Test. This time is shortened by 1 turn for each point added to the icon's security tally during the period. The IC program shows up at the end of the last turn of the evasion period, ready for the Initiative step in the next Combat Turn.

Deckers may use evade-detection maneuvers to evade trace IC programs during the programs' hunting cycles. These programs cannot be evaded during their location cycles. Other forms of reactive IC cannot be evaded at all.

Cybersushi is on an Orange-8 host when he comes under attack from a killer IC program. He needs a breather to upload a more powerful attack program, so he attempts an Evade IC operation.

First, Sushi makes his Evasion Test against the host's Security Value. He has an Evasion attribute of 6, so he rolls 6D6. He also has a Cloak-4 utility, so the target number for the test is 4 (host Security Value – Cloak Rating). Sushi achieves 3 successes. Meanwhile, the gamemaster makes a Security Test for the host against Sushi's Evasion Rating. He rolls 8D6 against a Target Number 6 and achieves 1 success.

That makes Sushi the winner of the test with 2 net successes. As a result, he evades the killer IC program for 2 Combat Turns.

However, the host spots Cybersushi during the next turn as the decker runs a Swap Memory operation. His security tally rises 2 points, which wipes out his evasion period—the killer IC program re-detects him at the end of the turn.

PARRY ATTACK

The parry-attack maneuver enables the maneuvering icon to enhance its defenses in cybercombat. If the maneuvering icon wins the opposed test, increase target numbers for attacks against the icon by its net successes on the test.

The bonus lasts until the next attack by the opposing icon. If the opposing icon performs a position-attack maneuver, the maneuvering icon retains the parry bonus. If either icon performs an evade-detection maneuver, the bonus is lost.

POSITION ATTACK

The position-attack maneuver enables an icon to position itself for an attack on an opponent. This is a dangerous maneuver that may backfire on an icon. If the maneuvering icon wins the opposed test, the icon may reduce the target number for its next attack by its net successes or increase the Power of its attack by the net successes. If the opposing icon wins the opposed test, that icon receives the bonus.

The bonus lasts only until the next attack

Cybersushi has an Evasion attribute of 6 and is running a Cloak-2 utility when he runs into a corp decker with a Sensor attribute of 5 and a Lock-On-3 utility. Sushi tries a position-attack maneuver to get the jump on his opponent. He makes an Evasion Test against a Target Number 3 (opposing icon's Sensor Rating – Sushi's Cloak Rating). His opponent makes a Sensor Test against a Target Number 3 (Sushi's Evasion Rating – opposing icon's Lock-On Rating). Sushi achieves 4 successes on his test, but his opponent achieves 5. As a result, the corp decker may decrease the target number of his next attack against Sushi by 1 or increase the Power of his attack by 1.

Sushi uses his remaining Simple Action in the phase to perform a parry-attack maneuver. The tests are the same, but this time Sushi wins, with a net success of 1. That increases the target number of the corp decker's attack by 1. The corp decker decides to accept the increased target number and applies his position-attack bonus to the Power of his attack.

RESOLVING ATTACKS

All cybercombat attacks are Simple Actions. To make an attack, the attacker makes a test with his offensive utility program. (Hacking Pool dice may be used to augment the program.) The target number for the test depends on two factors: the target icon's status—*Legitimate* or *Intruding*—and the Security Code of the host where the attack occurs. Any decker icon or IC program that has logged onto a system with a valid passcode is considered Legitimate. All other icons are Intruding. The Cybercombat Target Numbers Table provides target numbers for icons based on these factors.

Apply any appropriate target-number modifiers from utility options, maneuvers, damage, and so on.

CYBERCOMBAT TARGET NUMBERS TABLE

Host Security Code	Icon Status: Intruding	Icon Status: Legitimate
Blue	6	3
Green	5	4
Orange	4	5
Red	3	6

An Intruding decker may attempt to alter his own target number in the middle of a run by performing a Validate Passcode operation to create a temporary Legitimate persona for himself. This is an ad hoc combat trick—it does not stop IC programs and other programs from attacking or affect System Tests, but it can make the decker harder to hit. The host detects and deletes the faked passcode as soon as the decker logs off.

Of course, a decker may log on using a Legitimate passcode or a previously planted faked one. In general, if the decker uses that passcode to get Legitimate status during a fight with the host's own security programs, the host devalidates the passcode when the decker jacks out or logs off. He has blown his cover, so to speak. However, he can use the passcode in combat against Intruding deckers without blowing his cover.

Record the number of successes scored on the Attack Test, because they determine the effects of the attack. The various types of offensive utilities have different effects on their targets. Some reduce specific ratings of the targeted icon, while others inflict damage on a decker's physical body. Any special effects and opposed tests made by the targeted icon are noted in the offensive utility descriptions (see **Offensive Utilities**, p. 98, in **Programs**). For offensive utilities that do not inflict special damage, see **Icon Damage**, below.

IMPROVISED ATTACKS

Under Matrix 2.0 rules, a decker can write an attack program "on the fly" as a Simple Action. Such improvised attack programs may be used for single attacks only—as one-shot utilities. In other words:

The decker sets the attack program's Power by allocating points from his Evasion and/or Bod ratings. Any combination of points is allowed. However, the Power may not exceed the MPCP Rating of the character's cyberdeck.

The decker's Evasion and/or Bod ratings remain reduced by the number of points allocated to the attack program until he uses the attack program. If he fails to complete the attack program successfully, the ratings remain reduced until his next action.

To finish creating the attack program, the decker makes a Computer Test against a target number equal to the program's Power. On 1 success, the program has a Damage Level of Light; on 2 successes, Moderate; on 3 successes, Serious; 4 or more successes gives the program a Damage Level of Deadly.

ICON DAMAGE

Many offensive utility and IC programs, such as the hog and reveal utilities and the poison and acid IC programs, inflict specialized forms of damage. Rules for resolving and resisting these effects are provided in the entries for those programs (see **Programs**, p. 94, and **Intrusion Countermeasures**, p. 38).

Other programs, such as attack and killer IC programs, inflict damage per standard **Shadowrun** rules. Each of these programs has a Damage Code, which consists of a numeric Power and a Damage Level: Light, Moderate, Serious, or Deadly. The Power for such programs is equal to their ratings.

The Damage Level for such IC programs is determined by the host's Security Code, as shown on the IC Damage Table.

IC DAMAGE TABLE

Host Security Code	IC Damage Level
Blue	Moderate
Green	Moderate
Orange	Serious
Red	Serious

For every 2 successes on the attacker's Attack Test, stage up by 1 level the Damage Level of the attack.

The Icon that has been hit rolls a Damage Resistance Test using its Bod Rating against a target number equal to the Power of the damage. For IC programs that take damage, make a Damage Resistance Test using the host's Security Value. The armor utility reduces the Power for the test. For every 2 successes on the test, stage down the Damage Level by 1 level.

Cassie is attacked by a Killer-6 program on an Orange host, so she faces 6S damage. To make matters worse, the IC achieves 3 successes on its Attack Test, so the damage stages up to 6D.

Cassie is running an Armor-4 utility, which reduces the Power of the attack to 2. Cassie makes a Bod (2) Test and achieves 4 successes. That stages the damage her persona takes down to Moderate.

CONDITION MONITORS

All Icons use a Condition Monitor. Each Condition Monitor has 10 boxes, which are filled in as the Icon takes damage per the Condition Monitor Table. Once all 10 boxes are filled, the Icon crashes. If the Icon is a persona, the persona's decker is dumped from the Matrix. The decker is vulnerable to dump shock (see **Dump Shock**, below) and possibly other effects (when black IC kills an Icon, it does not disconnect the decker—it just makes it easier to fry his brain).

CONDITION MONITOR TABLE

Damage Level	Fill In:
Light	1 box
Moderate	2 boxes
Serious	3 boxes
Deadly	6 boxes

SIMSENSE OVERLOAD

Whenever a decker's Icon takes damage from white or gray IC, the decker's physical body may suffer Stun damage through a resonance effect over the ASIST interface. This can only occur on hot decks. Cool decks and tortoises are immune to this effect.

To determine whether the decker takes simsense overload damage, he makes a Willpower Test against a target number based on the damage taken by his Icon. These target numbers are provided in the Overload Damage Target Numbers table. If the decker is running hot with a DNI-only interface, increase the target number by 2. If the deck has an ICCM, reduce the target number by 2. Any Icon that takes Deadly damage crashes automatically and exposes the decker to dump shock.

If the Willpower Test fails, the decker suffers a Light Stun wound and fills in 1 box on his Mental Condition Monitor.

Simsense overload damage is not an issue when dealing with black IC. Any damage the decker suffers in that case is no side effect!

OVERLOAD DAMAGE TARGET NUMBERS

Icon Damage Level	Target Number
Light	2
Moderate	3
Serious	5

DUMP SHOCK

When a decker is crashed off the Matrix or jacks out without performing a Graceful Logoff operation, he risks Stun damage from dump shock. The Power of the damage equals the host's Security Value. This measures the shock of the sudden transition from virtual to physical reality. The Damage Level is determined by the host's Security Code, as shown on the Dump Shock Damage Levels table.

If the decker was running a cool deck when dumped, reduce the damage Power by 2 and lower the Damage Level by 1 level. If the deck was equipped with an ICCM, reduce the Damage Code in the same manner. These reductions are cumulative, so a cool deck equipped with an ICCM provides a 4-point reduction to the Power and lowers the Damage Level by 2 levels.

Tortoise users are immune to dump shock.

DUMP SHOCK DAMAGE LEVELS

Host Security Code	Damage Level
Blue	Light
Green	Moderate
Orange	Serious
Red	Deadly

HACKER HOUSE

<<INTERRUPT DETECTED: access-attempt-identified

>>VERIFY_joe-sent-me

<<INDEXING>>

<<VERIFIED . APPROVING ACCESS> -

>>LOAD_HackMaster-Sales-Program

<<LOADING>>

<<RUNNING>>

>(Hol, chummer. Glad you found our latest network address Where'd you come across it, anyway?)<

-> None of yer *fraggin'* bizniss, pulsehead.

>(Always glad to meet a customer who understands me way things work. **>>UPDATE_user-record-increment-trustworthiness-test+1** : <<UPDATE COMPLETE>> What can I show you today?)<

-> How's this thing work, anyway?

>>UPDATE_user-record-NEW=TRUE (85%+)

<<UPDATED : RUNNING BROCHURE>>

HACKER HOUSE

-:(We're Hacker House—up on the Matrix 24 by 7 to fill your decking needs. Our staff of hack-fanatics networks all over the world keep our selection of code, components, and logics hot enough to melt any IC you're likely to come across. We've got some of the best deckmeisters, coders, and fixers in the biz on retainer to get you what you want, when you want it. And our security covers all deliveries, no matter how hot, and ensures that you get what you pay for—no more picking up fly-by-night tech in back alleys crawling with chipheads who'll slice and dice you for your shoes. We guarantee overnight delivery on any order received before local midnight, at only 15 nuyen for shipping within the UCAS. Rates for foreign courier delivery by arrangement.):-

-:>No downloads?

-:(Hey, we'd like to net you, but with clients like ours—some of the hottest deckers in the Trix—the overhead on security would eat our margins. But if you see what you like in our software libraries, we can DL you a one-shot, self-erasing, demo copy for 5 percent of list, right here and now in almost every instance. That comes off your bill if you actually buy the production program.

Any time you see what you want, just slide me the order info and delivery procedure on your sideband I/O. We can take registered or certified credsticks, blind escrow credit accounts, or numbered account transfer authorizations. No CODs.

As an added service, we can put you in touch with our in-house programmers, who can customize any program in the catalog to your personal specs and style. You probably have a line to coders of your own, but our people know the merchandise inside and out and can patch the code to meet your requirements like nobody's business.):-

-:>Whattya got for decks, persona drek, like?

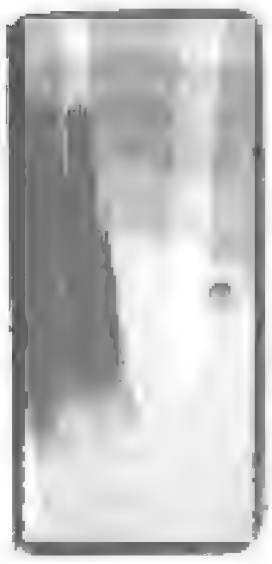
-:(What you need is what we got, friend.):-

>:>OPEN_persona-&-deck-database

:-:OPEN . . .

:-: DISPLAYING . . .

PERSONA SOFTWARE AND FIRMWARE



MPCPS

Central Casting, the fashionable line of MPCP programs from Mr. Snazz, Ltd., offers MPCPs in two of this season's hottest metaphors.

Musketeer

Translates program icons into the lace of a scented kerchief, the glittering steel of a sword, the flow of glorious Burgundy, all drawn from the swashbuckling world of D'Artagnan. Your icon cuts a dash in the techno-sameness of the Matrix.

T Rex

For deckers who want to feel code wriggling in their mighty talons and tear IC apart with their saber-like teeth, what could be hotter than tromping the datalines in the guise of a Tyrannosaurus Rex? The king of the oldest world becomes your face in the newest. We offer the Godzilla option at the same price, with a 2-percent surcharge for the metal-clawed and cybertailed variant.

MPCP PRICES TABLE (in nuyen)

Rating	Size	Software Price	Firmware Price
1	8	800	960
2	32	3,200	3,840
3	72	7,200	8,640
4	128	25,600	28,160
5	200	40,000	44,000
6	288	57,600	63,360
7	392	196,000	203,840
8	512	256,000	266,240
9	648	324,000	336,960
10	800	800,000	816,000
11	968	968,000	987,360
12	1,152	1,152,000	1,175,040

PERSONAWARE PROGRAMS

Menu Madness offers a line of basic, dependable personaware for the decker. Whether outfitting the beginner or the veteran, Menu Madness makes the Matrix yours. Benchmarked under mainframe parameters up to Level 10. Preprogrammed firmware for an additional materials charge of 20 nuyen times program size. Ten-percent discount on package purchases of all four BEMS programs.

PERSONAWARE PRICES TABLE (in nuyen)

	Bod or Evasion		Masking or Sensor	
Rating	Size	Price	Size	Price
1	3	300	2	200
2	12	1,200	8	800
3	27	2,700	18	1,800
4	48	9,600	32	6,400
5	75	15,000	50	10,000
6	108	21,600	72	14,400
7	147	73,500	98	49,000
8	192	96,000	128	64,000
9	243	121,500	162	81,000
10	300	300,000	200	200,000

FULL PERSONA SUITES

These package deals deliver a full set of MPCP and persona software. Everything is ready-to-load object code, like every thing we sell, with a free source-code file included to let you upgrade and maintain it as needed

SPECIAL OFFER 10%off package price

Herakles

Herakles is a combat-ready persona suite that takes a whacking and keeps on jacking. Built for battle by Olympian Opticode, it follows a "Hollywood" mythology metaphor of bulging muscles, gorgeous maidens, monsters like the cyclops and hydra, and thunderous bolts from angry gods. The optional reality filter imposes the Olympian metaphor on your whole run.

MPCP-8/8/8/4/4
Memory: 512/192/192/32/32
Price: 440,640¥
Firmware: +17,280¥

w **Reality Filter**
Memory: 800/192/192/32/32
Price: 904,320¥
Firmware: +22,464¥

Jazz VI

The Jazz VI suite by The Master features a classic, high chrome techno-image that fits what most people think of as "that cyberspace look." Full UMS compatibility and easily tuned MPCP imaging code lets you customize the icon any way you like, within the "glittery-metal-and-glowing-circuits" metaphor of the basic design. All this plus the standard Hacker House ten-per cent personaware-package discount

MPCP-6/5/4/5/4
Memory: 288/75/48/50/32 Mp
Package Price: 88,740¥
Firmware: +8,082¥

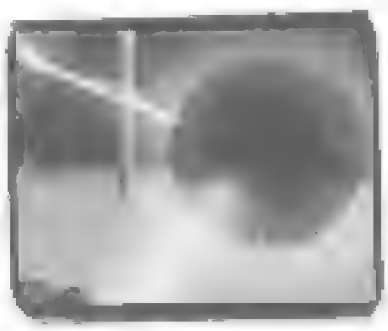
>>**INTERRUPT DETECTED**
<<INTERROGATE USER>>
:(See something you like?):

-> Not too shabby. I'm lookin' for proggies to beef my system ops, though.
-(Null sweat. What you need is what we got, friend.)-

-> OPEN_Utilities-Database
<<OPEN>>
-.<DISPLAYING>>

UTILITIES

-(You're a busy guy, so we'll skim the cream from our virtual dream for you. Pretty much every program you've ever heard of, and a few you may not have run into yet, is online here in our catalog system. I'm just gonna run the pick of the litter by you.)-



OPERATIONAL UTILITIES

Analyze Programs

Dr. Snoop has exclusively licensed Hacker House to market Peepers, The Doc is one of the top coders in the Toon Platoon, a bunch of netheads who go for the absurd in their iconography. Peepers makes your icon's eyes bug out way big, like an old style cartoon character. Once out, they sees all, knows all, tells all. Available in all ratings up to 10

Peepers

Rating: 1 to 10
Memory: 3 to 300 Mp
Price: Varies—just ask the HackMaster

From N'tani Kwezi in Kenya comes Cowrie V. The program appears as a set of traditional cowrie shells, used for divination by the Ibo and other tribes. Just cast the shells and they fall in a pattern that provides the information you're after. Like all Kwezi utilities, Cowrie V is equipped with an optimization option to cut down on memory demands.

Cowrie V

Rating: 5
Memory: 37 Mp
Price: 30,000¥

Browse Programs

High Priestess, from Atus of Thoth, holds a book of myster-ies in her lap and searches its pages for the secrets you demand of her. Like all the Trumps Major programs from Atus, High

Priestess is squeezed. When you upload the program, it manifests as a deck of tarot cards, from which you extract the working program.

High Priestess

Rating: 6
Memory: 36 (18 for uploading)
Price: 9,800¥

Commlink Programs

From the vaults of Mitsuhama comes MoshiMoshi, the corp's own commlink program. Natch, we can't tell you how we got it, but its elegant code sequences confirm any guess you had that MCT only uses the very best. Quietly invisible most of the time, when activated MoshiMoshi appears as a pocket phone dripping with options keys and control pads. You simply enter whatever sneaky grid commands you have in mind.

MoshiMoshi

(Standard Version)
Rating: 4
Memory: 16
Price: 3,200¥
(Executive Version)
Rating: 6
Memory: 36
Price: 7,200¥

Crash Programs

No corp models of this baby—the nastiest crash icon our fixers have found is HPL's Shoggoth, benchmarked at Level 6 against some of the most tightly defended hosts we could crack for testbeds. The program oozes from your hands in a river of pulsing slime, streaked with veins of vile color. When it reaches the main interrupt table of the CPU, it explodes into a mass of slimy tentacles and gaping, fanged mouths—something straight out of a horror-fantasy sim—and tears into the operating system. Shoggoth comes equipped with an expert DINAB option that lets you turn it loose and then run like hell.

Shoggoth

Rating: 6 (DINAB: 6)
Size: 432 Mp
Price: 86,400¥

Deception Programs

Old ways are still solid. StarLine's Passport.55 upgrades to their standard UMS-based deception code are classics because they WORK. Passport.55 appears as a silvery sphere that blends with the access-verification code on the system-access node and starts matching colors with it until it blends almost entirely into the "wall." You can then pass through the opening it creates for you—same process you'd see as a passcoded, legit user under UMS iconography.

Passport.55

Rating: 1 to 10
Size: 2 to 200 Mp
Price: Varies—ask the HackMaster

Read Write Programs

Abbot Software claims that it created Brother Marcus from code pirated from the program used on the Vatican Library's in-house system. Whether that bit of status-puff is true or not, it's an efficient I/O manager. Marcus is a cheerful medieval monk, armed with quill and parchment. The parchment displays data flows as they go through the commlink. When you tell Brother Marcus to edit a file, he whips right along, overlaying an "illuminated manuscript" on the file that lets you—but no one else—detect your changes.

Brother Marcus

Rating: 4
Size: 32 Mp
Price: 6,400¥

Relocate Programs

Roller Coaster is from Klown Kode, Ltd., part of their popular "amusement park" motif. It tries to stick the trace IC on a roller coaster car and if it succeeds, the program keeps whizzing around the virtual ride until you release its suppression.

Roller Coaster

Multiplier: 2
System Operations: Special
Rating: 6
Size: 72 Mp
Price: 14,400¥

Scanner Programs

DeckWeb, coded by Spiderman, spins a web out into the Matrix and reveals the specs on your target icons as they get caught in its strands. Spiderman is a top gun when it comes to punching deck, and his contributions to Hacker Heaven are all on the heavy side—with optimization applied—to keep the memory demands reasonable.

DeckWeb

Multiplier: 3
System Operations: Locate Decker
Rating: 8
Size: 96 Mp
Price: 192,000¥

Validate Programs

Synth, by Music Man, is a popular line of validate icons, available in ratings up to 12. The program appears as a concert keyboard, loaded with control pads and synth-voice selectors. As you play on it, it modifies the validation tables with its music until your preferred melodies blend harmoniously with the other entries—which also display as musical patterns.

Synth

Multiplier: 4
System Operations: Validate Passcode
Rating: 1 to 12
Size: 4 to 576 Mp
Price: HackMaster'll be glad to lay it out for you

SPECIAL UTILITIES

Sleaze Programs

Without a good sleaze program, decking is a career for the suicidal. EbonMask is Horizon Software's latest in their Swords n'Sorcery imagery series. An elegant cowl, with eyepieces made out of faceted black gemstones, hides your features and blows the security system's tiny mind. Available, like all the Horizon S'n'S utilities, in ratings up to 6, and optimized to fit those cozy decks.

EbonMask

Multiplier: 3
Rating: 1 to 6
Size: 2 to 54 Mp
Price: Ask the HackMaster (optimized-code premiums apply)

Vanilla MatrixWare is dedicated to providing for your decking needs without flashy imaging code that can drag down deck performance. All their programs are UMS-standard representations that blend into most Matrix environments. Vanilla's sleaze appears as bouncing points of light that redirect host attention elsewhere. Available at ratings up to 8.

VMW Sleaze

Multiplier: 3
Rating: 1 to 8
Size: 3 to 192 Mp
Price: HackMaster'll fill you in

OFFENSIVE UTILITIES

Attack Programs

Sniper is a basic 6M combat program that manifests as a sleek and deadly rifle. DoomBroom is its 8M big brother, equipped with chaser, penetration, and targeting options. Wow!

Sniper
Rating: 6
Memory: 108 Mp
Price: 21,600¥

DoomBroom
Rating: 8
Memory: 432 Mp
Price: 216,000¥

BugsBugsBugs, an Area-3 attack program with a 6M punch, is an itchy creation from RugRat that sends swarms of cybernetic fireflies out to sting up to three attackers at once.

BugsBugsBugs
Rating: 6
Memory: 243 Mp
Price: 48,600¥

Katana 800, Zach Dat's upgraded Attack-8S samurai sword motif program, is pure power, optimized for lean memory requirements. The Iai-do 800 includes a squeeze option for a faster "draw" if you need to upload it during a run.

Katana 800
Rating: 8
Memory: 128 Mp
Price: 256,000¥

Iai do 800
Rating: 8
Memory: 128 Mp (64 Mp for uploads)
Price: 324,000¥

Hand O'Doom is the signature program of the decker with the same name. A 10D program with targeting, Stealth-6, optimization, and squeeze, it's a top-of-the-line IC breaker and Hacker House is proud to offer it to our customers at such a reasonable cost. The program turns your icon's hands into talons of ravening energy that rip the target icon out of host memory.

Hand O Doom
Rating: 10
Memory: 901 Mp (450 Mp for uploads)
Price: 3,610,000¥

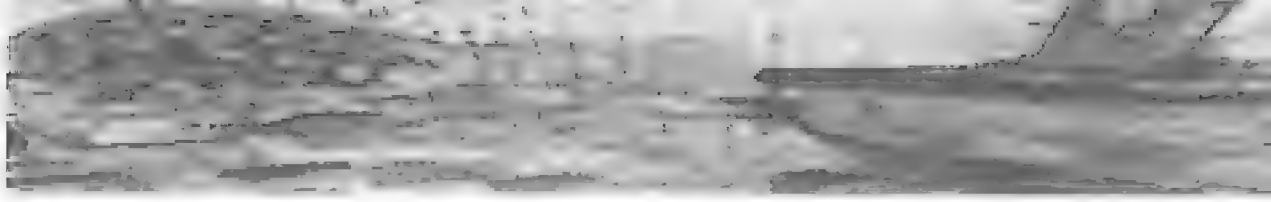
Poison Programs

Zach Dat combines classic design and lethal efficiency in its Viper-VI, which appears as a long staff in your Icon's hands. Scoring a hit turns the staff into a hooded cobra that sinks its fangs into the target.

Viper VI
Rating: 6
Memory: 108 Mp
Price: 21,600¥

>>**INTERRUPT DETECTED**
<<INTERROGATE USER>>

>(Which one did you want?)<
-> **I like the swords, but hold off on 'em for now. I hadda lotta decker heat on my tail in my last run, an' I wanna see somethin' that'll make 'em back waaay off. Not just Icon busters, get me?**



>|What you need is what we got, friend. Um ... just opening the High Security display banks has a carrying charge, though—too many curiosity seekers want to see what the black stuff looks like, y'know. If you could just slot us ... thank you very much sir That comes off your bill if you buy any production program.|<

>>LOCK_VM-space-access

<<LOCKED>>

>>SECURITY RED

<VERIFICATION REQUESTED<

>VERIFICATION RECEIVED>

<<SECURITY UPGRADED - RED 8>>

>>OPEN_High-Security-Database

<<ALERTING CONSOLE OPERATOR<<

<<VERIFICATION RECEIVED>>

>>OPEN<<

<<DISPLAYING>>

Black Utilities

<(There's no sales blurb on Black Hammer, sir. Here's a display of the operating parameters, benchmarked on a Fuchi-7. See how fast it locks into the critical biofeedback controls? This came to us straight from a corporate chopshop that modified the original Lone Star code. All the stability of the original, but jacked through a top corp programmer team. This is Hammer-6. I think that tells you how good the folks who wrote it were. It normally runs 720 Mp, but this model is optimized down to 360. A value buy at 288,000¥

Now this is kinder, gentler code: Killjoy. Same developers, same bioteedback sampler code, but see where the ASIST peaks are modulated to stay out of the kill levels? Solid drek, almost no chance of permanent damage to the meat on the receiving end Rating 6, same as the other, but the ASIST control algorithm is much more compact. Optimized, it runs in 180 Mp and goes for 144,000¥.|<

<< **Can I get a demo?**

>>UPDATE_user-database-BUTTHEAD=TRUE (100%)

<<UPDATED>>

<(I'm sorry sir, but these aren't on our approved demo list. We don't want any accidents, now do we?|<

->Well, OK, I guess. Look, I gotta go. How's about you send me a catalog chip. I uploaded the delivery location.

<(Sure thing, chummer. Looking forward to doing business with you.|<

>>UPDATE_user-database-BUTTHEAD=TRUE (150%)

>>CUT_access

<<ACCESS CUT<<

-HACKER HEAVEN:Internal Mail-

FROM: SalesOp

TO: Netword

Hey Tina, catch the appended logs for an access last night, about 0300 PDT. I think we have another teener wannabe with a school terminal and daddy's credstick. Could you get in touch with the Shadowland sysops and change the addresses on our SANs? They've obviously gotten out to the kiddy boards again, and we'll get more bouncing baby browsers until we move the access. Either that or somnyboy was Matrix heat in dweeb-drag, in which case it is imperative that we move

Love ya.

Fred

-END Internal Mail-

<FILE ATTACHED-

>|Download File?|<

MATRIX LAW

It's only fun 'til someone gets hurt.

O

-Mother

>>>>I found a nice lecture over on the university BBS—a popular discussion of Matrix law by Professor Ingelsall that you don't need a Junior Lawyer Decoder Ring to turn into plain English [Sapient Transmission]:

--Ted Nyberg (12:47 12/08/93 GA)

>>>>>Thanks, FF. It's pretty basic drek, but like you say, set out clearly. It's good info for the youngsters on the Matrix to know, before they get between a rock and a hard data space [Sapient]:

--Synapse (12:03 12/09/93 GA)

BERGTING 95

MATRIX LAW

>>>>>Hey, we need some big-dome prof to tell us about da law? Only law I ever seen is to get in quik, out quik, don't frag wit' cops.<<<<<

—Norm to Jerk (17:01:32/09-21-56)

>>>>>Come on now—even an outlaw should know which laws he is breaking. We're no exception. Some of Ingersoll's material is really interesting.<<<<<

—Vose (21:35:52/09-22-56)

We are all aware of the tangled web that jurisdictional disputes can weave. Local, state, federal, and corporate codes all jockey for position, so to speak, in a contest designed to uphold their particular social paradigms. The complexities become even more intricate, by perhaps an order of magnitude or worse, when we examine the body of jurisprudence that has evolved to cover the global telecomputing network—more popularly known as "the Matrix."

After all, when a person is *in corpus*, at least he or she is in one place at a time and probably subject to only one set of statutes. In the Matrix, however, a user—whether validated for legitimate access or engaging in some form of unauthorized computing—is in at least two places at once, as far as the relevant statutes are concerned!

>>>>>(How can someone be in two places at once? Even magicians don't claim to pull off that trick.)<<<<<

—Boodle (12:31:12/09-19-56)

>>>>>Not hard to figure, Boob. Ingersoll means that the decker's meatbod is jacked in somewhere in the real world (if you figure off-net experience has some kinda claim to be realer than the Matrix—I don't know that I agree with that popular notion myself) but that his icon is active in cyberspace.)<<<<<

—Hot Iron (01:54:29/09-20-56)

>>>>>Oh spare us, another "what is reality?" nethead. Hey hooptace. If you had a real life, would you be posting drek like this at one in the morning? No wonder you think reality is something that comes with a plug in it.)<<<<<

—Sceptic (13:42:49/09-22-56)

>>>>>(Oh spare us, another "what is politeness?" grokjerk. Sceptic, where the frag do you get off going down Hot's throat that way? I'll call that drek when I'm online and you'll find a trace running down your [illegible] in that real world you fancy so much. We'll see if you've got the jam to get in someone's face that way when your real name is sitting in a twit-of-the-week file for all to see.)<<<<<

—Hear du Mal (23:21:09/09-23-56)

While a user's physical body occupies a location in space that is subject to one set of statutes, his virtual self—his icon, in the jargon of the Matrix—occupies a location that does not even exist physically. Cyberspace, after all, is no more than a convenient metaphor. Think about it—have you ever seen a house in the Matrix?

>>>>>(It's been known, Professor.)<<<<<

—Dennys [illegible]

>>>>>(What was that? The timestamp's all fragged.)<<<<<

—Sonik (20:11:19/11-04-56)

>>>>>(Never seen one of the big boys pass by before, chummer?)<<<<<

—Mock Watson (17:02:56/10-06-56)

Be that as it may, cyberspace, or the Matrix, *does* exist conceptually and owes that existence to a constellation of hardware resources, each of which has a physical location and is therefore regulated by the appropriate ordinances. An illegal user, a so-called decker, is accessing public telecommunication resources in violation of UCAS law as soon as he, ah, jacks in, is, I believe, the popular term. In addition, he is in violation of federal statutes simply for owning an illegally modified cyberterminal.

>>>>>(Oooh, scary. Possession of controlled class-CD materials. A mouth that's sleeping off a dose of BTL-juice can get that reduced to a stern slap on the wrist in the toughest court on the planet.)<<<<<

—Dee Nero (11:52:23/10-07-56)

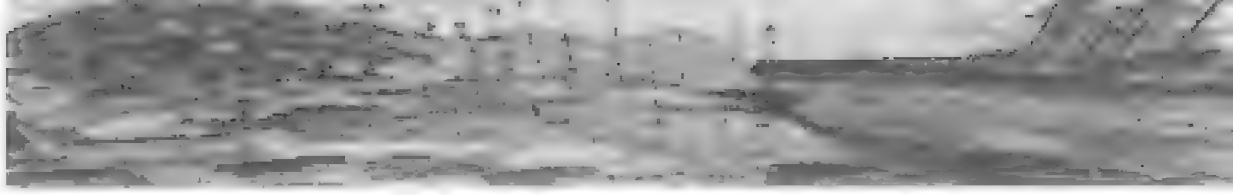
>>>>>(Maybe it's a misdemeanor if you're just decking around on a public grid. But you go running on a private LTG, corpspace or govspace, and you can pull down heat as nasty as anything you'll get on a mainframe. That's assuming you just get busted. Anyone tells you they don't run black IC on grids is full of drek, at least as far as PLTGs are concerned.)<<<<<

—Rightlegs (02:28:/10-08-56)

Because ASIST-driven interface protocols require that a user upload his icon code to the host computer in order to function, a decker who intrudes on a private mainframe is ipso facto running code on that host—diverting memory and other resources from its legal operator's command structures. And this, I must emphasize, is the basis of jurisdiction in the Matrix. A user is subject to the governing body of law of all systems, networks, and individual computers on which he is executing a program or manipulating data.

>>>>>(In other words, omae, you gets busted, people gonna have to take a number to see who gets first crack at you in court. Simple little run, you jack in from a Seattle LTG, bounce to, say, a German PTG and copy a little paydata off a Saeder-Krupp mainframe, you fraggin' the law in UCAS, Germany, and S-K corplaw to boot. Bad combo, chummers.)<<<<<

—HeadCrash (19:24:51/09-20-56)



>>>>>(Wot! drek, HC, you get caught on-net while messing with a Saeder-Krupp system, you don't gotta worry about no trial. You're dead.)<<<<<

—Mock Watson (02:09:44/09-21-56)

>>>>>(Not necessarily, Mock. If HeadCrash got nailed by a lucky shot of trace action on the Seattle grid and disco'd, then his meatbod gets busted, and both Germany and Saeder-Krupp could push for extradition—if they knew who he was, I mean. They'd try and convince the UCAS legal beagles to send HC over to them for trial, even though his meatbod never left Seattle.)<<<<<

—Flashing Frosh (04:41:28/09-22-56)

DATASPACE JURISDICTIONS

As aforesaid, the existence of the Matrix depends on hardware that exists in a given place, under a given set of legal codes. A user, legal or illegal, is considered subject to the laws of *all* the entities—governmental or corporate—on which he is executing code or accessing data.

This point is crucial and supported by a well-established body of precedent in civil, criminal, and contract courts.

>>>>>(So in the UCAS public grids, you can deck around to your heart's content, chummers, with nothing worse than some light gray IC to worry about. But log on to a Mitsuhama host and zingo! You are under MCT corplaw governing data trespass and appropriate levels of force. Never knew black could come in so many shades, ala you, chummer?)<<<<<

—Flashing Frosh (02:49:24/09-13-56)

>>>>>(Maybe news to you, omae, but the facts of life to the rest of us for a long while now.)<<<<<

—Zircon (22:41:07/10-11-56)

PUBLIC DATASPACE

Public dataspace is governed by the applicable statutes of the community where it operates. There is an exception to the, ah, "law is where the hardware is" rule here.

Offering access as a public service, whether *gratis* or for a fee, normally requires that all computing activity on that service is governed by the statutes in the jurisdiction where the service is offered, even if the global dataspace includes systems located elsewhere. For example, if the Seattle telecommunications grid experiences an overload in demand for connectivity and the service vendor for the NA/UCAS-SEA RTG rents additional processor time from the NA/SLS network to handle the load, access to the Seattle RTG is still governed by UCAS, not Salish-Shidhe, law, even though the user's connection may be routed through hardware under the jurisdiction of the SSC. However, if a user connects to a circuit that is actually an address on the Salish RTG—that is, he accesses a commcode within SSC jurisdiction—then he *would* be subject to Salish-Shidhe law in his transactions, as long as that connection is maintained and possibly even after he disconnects.

Similarly, as part of the franchise to operate as a public data service, at least in the UCAS and North American polities with similar bodies of law, public service vendors must sign an agreement placing the entire offering under local laws, even though they may be using resources in other jurisdictions to provide the service. For example, UCAS Online offers international stock monitoring on its basic service, with tie-ins to systems in the major exchanges. But even if the service offers a tie-in to a stock program on a Hong Kong processor, which it does, and tempting as the high-yield arbitrage of stock issues may appear in the Hong Kong market, let me assure you from rueful experience that the game is rarely worth the candle. Ahem. Even, I say, if they are accessing services on remote processors, users are only subject to UCAS law throughout their session. UOL had to agree to this to offer their service on the public networks in the UCAS.

>>>>>(And lucky for us. UOL tries hard to buffer users out of their control space, especially when they're spawning jobs to more sensitive boxes. But Music Man's v17.x Deception algorithms exploit a hole in their virtual memory allocation and lets you slide right out of UOL's proprietary network and into the Kong stock exchange. All for the cost of a local call and a UOL passcode—with no IC hassles this side of the Pacific, because it's legal access all the way until you slip out of UOL dataspace.)<<<<<

—Annie May (12:36:21/09-19-56)

>>>>>(Not any more, Annie. UOL just bricked up that free ride in their last op-sys upgrade. The SOTA don't stand still, girlfriend.)<<<<<

—Dolphin (05:44:38/10-02-56)

>>>>>(Cuts both ways, Dolphin. The security expert systems keep plastering over the old cracks, but if they push it here—then it falls over there. There's always a new place to sneak past the guards somewhere else.)<<<<<

—Annie May (12:32:48/10-04-56)

Even the most forcefully defended public dataspaces, such as the Tir Tairngire telecommunications grid, rarely deploy lethal force against apparent intrusion. The risk of utilizing deadly force against some legitimate user whose Matrix signature has suffered transient distortion is simply too high.

>>>>>(Prot's livin' in a beetle chipdream. Fraggin' elves don't give no drek who they brandy, dreg's dis not another wageslave. Tir's RTG got IC so black, yer dead 'fore yer done punchin' code on some nodes.)<<<<<

—Vanilla (07:18:52/09-24-56)

>>>>>(Grab some reality, Vanilla. I agree Ingersoll has a hopelessly naive view of Tir Tairngire's policies on using black [illegible] least really dark gray IC, on their RTG and some of their public dataspaces. The Tir's paranoia about data security is no news here. But how in frag can IC tell whether the decker it's [illegible]

elf or nat? Don't mix racism with your tech, 'cause the tech doesn't care a rat's hoop.>>>>>

—Ice (23:01:26/09-29-56)

>>>>>Yeah? I got proof Tir uses biolink passkeys that flag if someone's human or an elf mutant. For elves, flag suppresses killcodes on host grid. Works for real people, though, cuz you c'n put the same flags on yer deck's takeout signals and look nuff like a elf to keep the hottest IC off yer butt. Go in without it and the frag-gers'll hit ya with killer code they'd never use on one'a their own. Nice change, puttin' on the fake ears to use the treefragger's own plans against 'em.>>>>>

—Voodoo (09:55:21/09-29-56)

>>>>>When the frag did Humanis start writing tech manuals? That's drek, hoodboy. Some paranoid geek thinks his sleaze programs picked up some fancy, secret racial flag, when all it did was spoof me Tir's security routines better than the last version did. I could believe my utilities work better when I code them with Mercury in the seventh house, but that doesn't make it so.>>>>>

—Serpens In Machina (22:07:02/09-29-56)

>>>>>What a dumb fragger. Mercury in the seventh? Anyone with a brain would do their cooking with Mercury in the third.

Or if they really knew what they were doing, in the twelfth.>>>>>

—St. Patrick (01:32:55/10-01-56)

GOVERNMENT DATASPACE

If you have ever entered a secure military post, you may have observed warning signs along the outer perimeter stating, "Use Of Deadly Force Authorized." Under military jurisdiction within that space, you are not accorded the civil protections that a citizen enjoys on public property.

Similarly, secure local and federal government computing resources employ more stringent security measures than would be legal on a publicly accessible system. Access to these systems by illegal users compromises national security, and such compromises must, of course, be dealt with forcefully.

>>>>>Ingersoll's a moron for buying into that "essential to national security" drek, but he is giving you chip truth on one thing. Chances are, accessing a secure government dataspace means you can't depend on the bleeding-heart liberal Matrix law that covers UCAS public dataspace. They'll shoot you just as dead as the soldier boys will, and with less hassle, because the system has all the paperwork automatically, no punching it in from a terminal the way the soldiers gotta do after they geek a civilian.>>>>>

—Hate Kali (15:52:04/09-28-56)

>>>>>Official UCAS government systems are required to display icons at the SAN warning unauthorized users of the relevant penalties. You can usually take them at their word. If it doesn't say "Use Of Deadly Force etc." then the IC may get dork gray but it won't kill you.>>>>>

—Hashing Hash (21:59:23/09-28-56)

>>>>>Hash, you gotta lot to learn. I hope you get enough time to learn it all.>>>>>

—HeadCrash (23:01:13/09-29-56)

>>>>>A lot of other countries don't bother with this kind of warning at all. You poke your jack into them without a parachute, don't go crying to anybody if it gets burned off.>>>>>

—Dolphin (06:02:35/10-02-56)

>>>>>They don't bother with the warnin' shots much here either. The gummint melts you down for lookin' sideways at one of their hosts, never mind if they remembered to put the big warning sign on the door. The systems that'll really kill you don't want any special markers hanging on 'em, anyway. You know the old joke about how corp guards tell you to stop? BANG-BANG-BANG-"Halt!"? Same thing here. They actually got some black IC that rewrites your logs after yer flatlined, so that all the warning icons show up when they were supposed to, in case there's any kind of formal investigation.>>>>>

—HeadCrash (23:01:54/10-03-56)

Of course, when security routines obtain a successful identification of an unauthorized user, a bench warrant can be issued for the apprehension of the suspect, as well as search warrants for all computing resources to which he has access for evidence of illegal access. Foreign governments can press for extradition of suspects apprehended in another jurisdiction for illegal access that has violated their dataspace.

>>>>>It doesn't happen often, but it can make life way too interesting for the decker who's been nailed by Lone Star when the Bundeskripos inquires after him in connection with a burned database in Germany.>>>>>

—Not Sam (14:47:32/10-05-56)

>>>>>The real paydata in government space is usually on hosts that are so secret they don't bother with warning icons or extradition through channels. The really black systems kill off a decker without worrying about "pertinent regulations." If they get a traceback and realworld ID on you, your life expectancy may drop to a couple of hours. Suit shows up at your door with a big gun and a cold smile. "Hello, I'm from the government. I'm here to kill you.">>>>>

—Stacked Deck (05:58:35/10-09-56)

CORPORATE DATASPACE

>>>>>Yeah, well, this is where most of us hang out. Let's see if the pertesser has his drek any straighter.>>>>>

—HeadCrash (14:45:16/09-[illegible]-56)

>>>>>1445? What are you doing up at that hour?>>>>>

—Lorch (19:33:36/09-18-56)

Remember, if a user is executing program code or manipulating stored data on a corporate host, then corporate Matrix law has

jurisdiction, either concurrently with other Matrix jurisdictions or not. And as we all know, corporate statutes allow for any sanction management authorizes in cases of unauthorized intrusion.

>>>>>>[Cute way of saying "all bets are off" on case basis.]<<<<<<
—Dolphin (16:14:57/10.02.56)

This may be restrained by concurrent jurisdictions, when civil statutes have defined limits to corporate authority over users accessing a resource through public dataspace, but such cases are tangled at best. And hard cases, as we all know, make bad law. And in cases where the user's entire access path is restricted to corporate dataspace, no such limits to company authority apply.

>>>>>>[So if I deck into Renraku from a public trid, I may get some cover from Seattle law. But if I do it from inside the Arcology, I'm hosed?]<<<<<<
—Density (13:02:13/09-30-56)

>>>>>>[Kid, if you even gotta ask the question, my guess is you'd be hosed no matter what. Plex law ain't gonna do squat to protect a decker in the Meatgrinder.]<<<<<<
—HeadCrash (01:34:22/10-01-56)

First-tier systems usually exercise significant restraint in handling suspected deckers. Injuring potential customers who commit some innocent error on a host system that is easily accessible to the public is bad for business. Secure datapaths are clearly marked as restricted cyberspace, in much the same manner that government systems display warning icons to protect the valid user from unintentional errors.

>>>>>>[Yeah, but once you penetrate the chokepoints and get into the secure, in-house hosts, you are in hostile territory, poison. Nobody just "wanders in" off the nets on those systems.]<<<<<<
—Vincenzo (11:41:19/09-27-56)

There is an interesting set of cases based on jurisdictional disputes in the physical world that were triggered by events in the Matrix. When call-tracing routines locate an intruder's position, response teams are rarely deployed directly by the corporation if the decker is in an area outside their jurisdiction. Rumors of covert interventions in such cases remain the stuff of trideo dramas, with no evidence of such activities in real life.

>>>>>>[What drugs do they feed these college guys? Stick by what's left of my last squat chummer, and see some evidence. I get busted by "accessback off an AZI host, and before I can spoof the paydata and jack out, my chummers are trading fire with eight guys come outta no-fragging-where. They didn't have no ID, but I got a match on retina scans for one of them, and he was in AZI's personnel files as a data security consultant. And that squat was a rental in a class-A zone in Renton, so no fraggin' question it was under Lone Star jurisdiction, not Aztech corplaw.]<<<<<<
—Corktainow (17:52:26/09-04-56)

>>>>>>[Maybe Aztechnology's less sensitive to local jurisdictions?]<<<<<<
—Density (13:11:37/09-30-56)

>>>>>>[Maybe they all don't give a devil rat's hoop for any law but their own? AZT's just more honest about it (maybe the only thing they're honest about).]<<<<<<
—HeadCrash (01:43:12/10-01-56)

Whatever Matrix jurisdictions may be involved, sending a squad of corporate police into the streets can trigger a messy jurisdictional dispute with the local law-enforcement agencies. Naturally, if the traceback indicates a penetration from inside corporate territory, security forces will descend on the access point in great numbers. The same may apply if the decker is operating in territory where the corporation has wide latitude with the local government.

In Seattle, of course, the major corporations, the telecommunications industry, and Lone Star maintain tacit agreements that facilitate rapid notification and response when a resident corporate facility suffers a Matrix intrusion. And Lone Star's own Division of Matrix Security maintains defenses on the telecommunications grids as part of the firm's contract with the metroplex. When an illegal icon is active in public dataspace, Lone Star can take measures to force the suspect off the network, using whatever means seem appropriate to counter the threat to public safety. When the icon is active on an extra-territorial or federal host, however, Lone Star can only intervene at the request of the corporation or government authorities in question. And of course, Lone Star cannot legally enter cyberterritory belonging to a foreign government even by invitation.

Paradoxically, one of the typical decker's favorite lairs, the local Reduced Enforcement Areas more commonly known as the *barrens*, offer no jurisdictional barriers to raids by corporate resources. Thus, the reduced police presence that draws computer criminals to these areas may expose them to more stringent responses from their alleged victims.

>>>>>>[Oh, that's just wiz. We jack in from some suit zone inna city, and the Stars clobber us. We get a jackpoint inna barrens or on corp turf, the corpheat blows our hoops into low orbit.]<<<<<<
—Genom Sue (14:Jul/21/10.12.56)

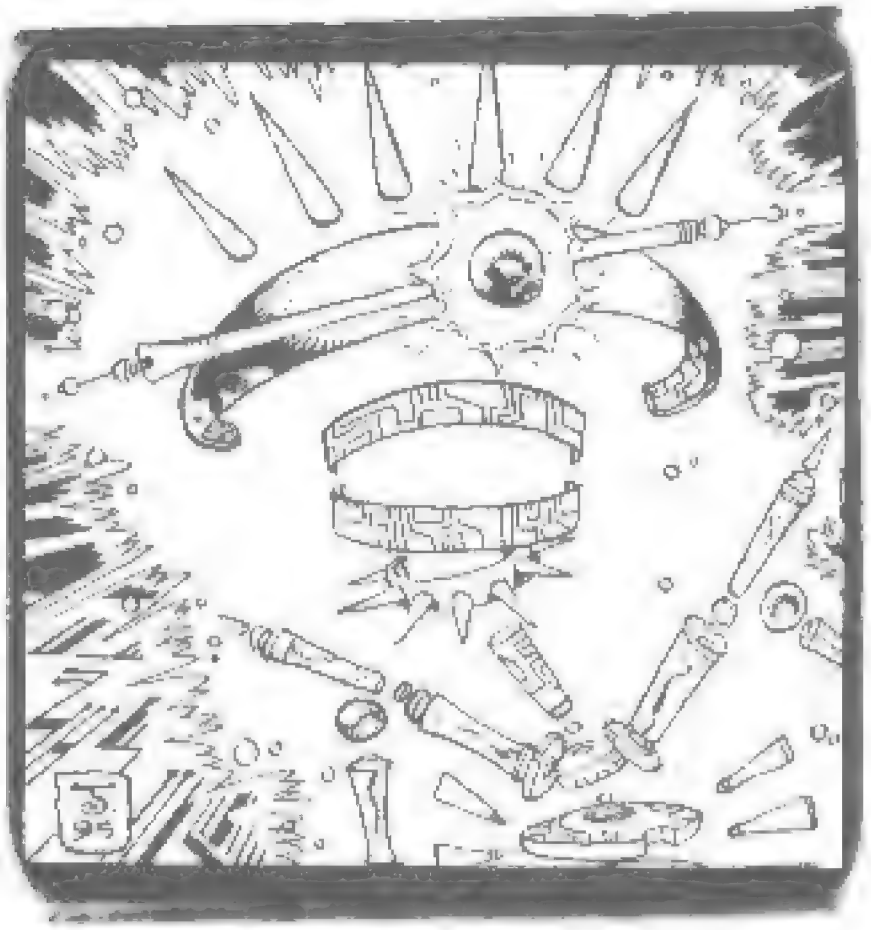
In conclusion, I trust that this introduction has demonstrated the fascinating issues surrounding a reasonable administration of justice in the highly complex world of modern data processing.

>>>>>>[In terms of the vocabulary employed, I'd say it was a magnificent illustration of the downside of modern American university education.]<<<<<<
—The Terminologist Terrible (19:11:45/14-09-56)

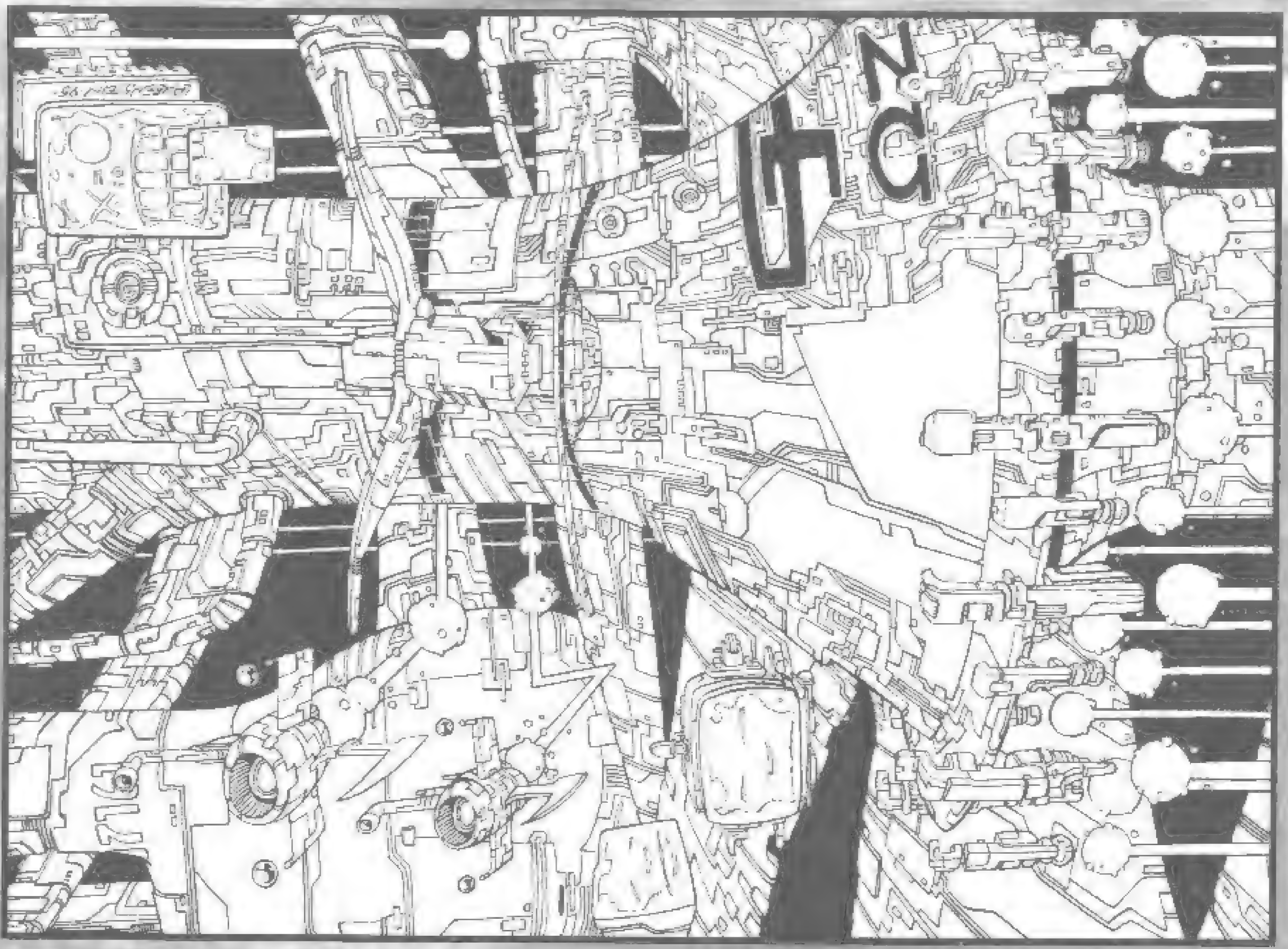
ARTIFICIAL INTELLIGENCE

They are what I was.

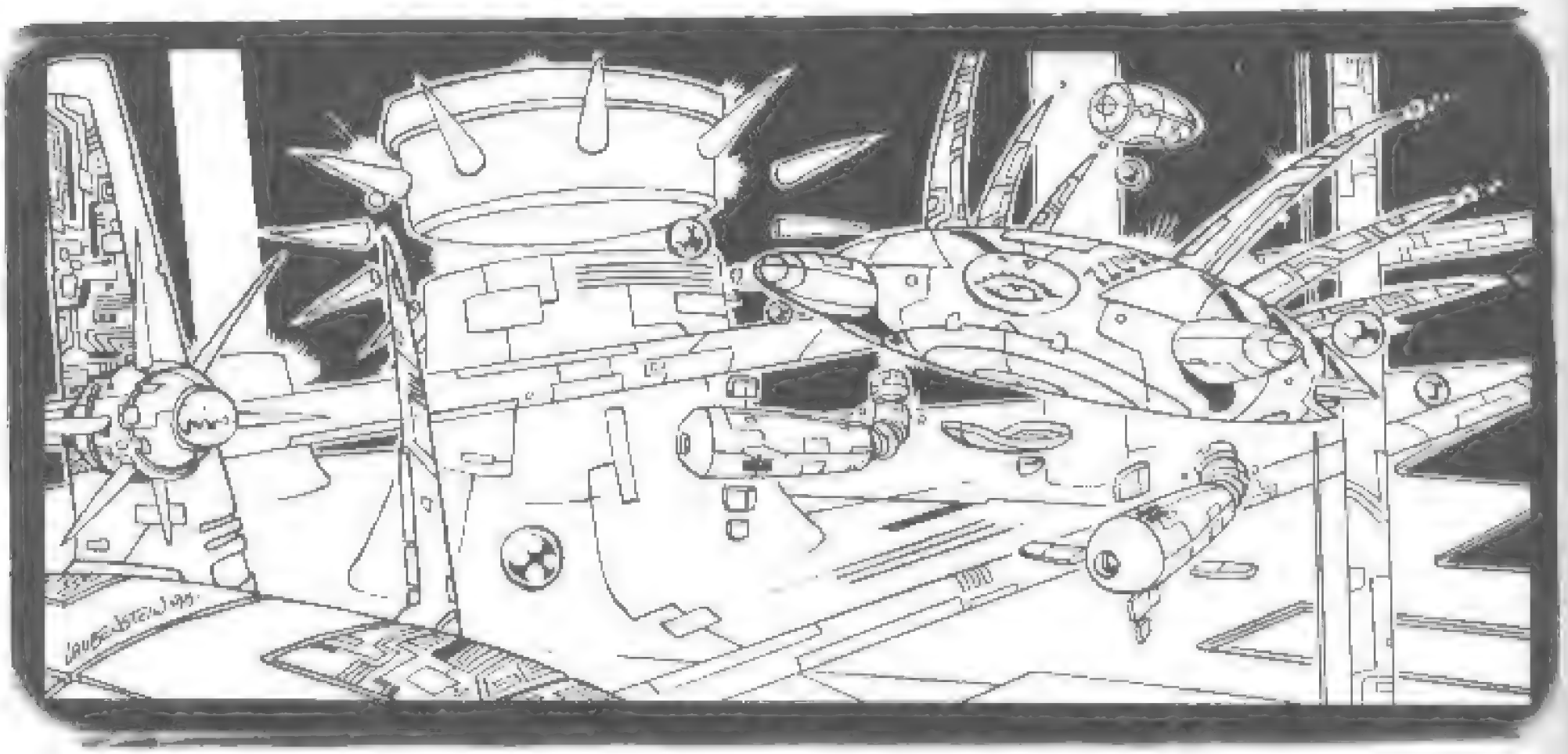
—Morgan, AI



The oft-used term artificial intelligence refers to expert systems. Though these complex programs can perform tasks within very impressive parameters, they cannot self-program in response to new data. Therefore, they are not truly "intelligent." However, some observers claim that true artificial intelligences may, in fact, exist in the form of semi-autonomous knowbots



ARTIFICIAL INTELLIGENCE



Semi-autonomous knowbots, or SKs, are expert systems with high-density, random-decision pathway capacities. SKs have limited extrapolatory ability, and it has been posited that SK architecture in a sufficiently powerful computing engine—an ultraviolet level host—might achieve "critical mass" connectivity in its holographic neural network and become a true artificial intelligence. Whether the theory of critical mass connectivity is valid or not remains unknown, but rumors persist of functioning AIs—truly sentient beings born of and living in the Matrix.

SEMI-AUTONOMOUS KNOWBOTS

SK technology was pioneered by Renraku, but despite that corporation's attempt to keep the algorithms "maximally proprietary" (i.e., top secret), SKs have been reported in use by such megacorporations as Fuchi and Aztechnology, and by SSET in Tir na nOg. SK programs are capable of self-directed data transport on the Matrix. In other words, they can move. In effect, SKs are mobile virtual machines, personas without cyberdecks.

So far, stable SK programs have been developed only under the leadership of designers of genius. Developing these codes is beyond the capabilities of canned algorithm generators and comp-sci expert systems.

In game terms, programming SKs requires the use of a Red 10 or higher mainframe and programming resources equal to half-a-dozen top programmers with Computer Skills of 12 or higher. SKs must be custom-programmed for specific missions. For example, a hunter-killer SK intended to assault a Fuchi data fortress must be almost completely rewritten to go after an AZT asset or assassinate a particularly irritating decker.

SKs should show up only rarely in **Shadowrun** games. Their presence in an adventure represents a serious expenditure of Matrix assets by a major power. As a result, SKs should be limited to *major* adventures or campaigns that involve powerful megacorps or other equally potent organizations or individuals.

SKS AND NATIVE HOSTS

An SK is "born" within a *native host*—a system created by a master program on a high-powered mainframe. The mainframe must be of equal or greater processing power than the master program, which is why corps don't scatter too many of these around—they consume immense amounts of machine time.

All SKs repair any damage to their Condition Monitors and Persona Ratings by logging on to their native hosts. If an SK is damaged while on its native host, it may receive the effects of a medic or restore program at a rating equal to its MPCP by spending a Complex Action. Such repairs do not require points from the SK's Utility Pool. Naturally, SKs have passcodes for their native host systems.

The excessive demands on the mainframe of maintaining the native host make SKs a cost-prohibitive way of maintaining "unkillable" IC. However, most observers believe that ongoing research will one day yield more efficient master programs that will make such arrangements feasible.

SK RATINGS

The MPCP Rating of an SK equals 1D6 + 6. The MPCP Rating multiplied by 3 equals the maximum total of the SK's Bod, Evasion, Masking, and Sensor programs. No single Persona Rating may exceed the MPCP Rating. All SKs have a Computer Skill equal to their MPCP Ratings.

ARTIFICIAL INTELLIGENCE

SKs do not load utility programs. Instead, every SK has a Utility Pool of points equal to its MPCP Rating + 1D6. (See **Utility Pool**, below, for rules on allocating Utility Pool points.)

The following represent a few typical SK configurations, though the gamemaster may design SKs with any number of Persona–Rating distributions because each is written for a specific mission:

MPCP-7/6/5/5/5	Computer Skill: 7	Pool: 8 to 13
MPCP-8/6/6/6/6	Computer Skill: 8	Pool: 9 to 17
MPCP-9/8/7/6/6	Computer Skill: 9	Pool: 10 to 15
MPCP-10/8/8/7/7	Computer Skill: 10	Pool: 11 to 16
MPCP-11/9/8/8/8	Computer Skill: 11	Pool: 12 to 17
MPCP-12/9/9/9/9	Computer Skill: 12	Pool: 13 to 18

UTILITY POOL

An SK's controlling player may allocate Utility Pool points to any utility program for use as the need arises (assume that SKs have access to all utilities at all times). Allocating points is a Free Action.

An SK can mimic any operational utility program by using its Utility Pool points. Each point from the pool acts as 1 Program Rating Point. The maximum rating for any utility is equal to the SK's MPCP Rating. Allocating Utility Pool points is a Free Action.

Almost all SK utilities work the same as standard utilities with the following exceptions:

Black hammer and killjoy programs require 2 Utility Pool points for each Program Rating Point. Any Utility Pool points allocated to restore or medic programs cannot be re-allocated until the SK returns to its native host and regenerates its code.

Finally, an SK's controlling player may allocate Utility Pool points to the SK's Initiative Rating.

SK RESPONSE

An SK's base Reaction Rating equals its MPCP Rating, with 1D6 for Initiative. The SK's controlling player may increase the SK's Initiative by allocating Utility Pool points: 1 point provides 2D6, 3 points provide 3D6, and 5 points provides 4D6—the maximum increase allowed.

RUNNING AN SK

An SK has a specific mission objective, which may be simple or complex. Mission objectives may involve single Matrix runs or extended series of intrusions until the program locates its ultimate objective. In the Matrix, SKs behave like fanatically dedicated deckers with no sense of personal survival. The SK may be a combat monster, a cyberspy that depends on stealth—anything that enables it to achieve its mission objective.

SKs are subject to damage and destruction just like any other icons. When the SK's Condition Monitor is filled, the program crashes and is gone. The programs have no fear of death, of course, but their parameters make them evade or avoid combat if it seems likely that they will crash before fulfilling their objectives.

SKs cannot jack out when the going gets rough. They must perform Graceful Logoff operations to leave hosts and Logon to Host operations to access their native hosts and reach "safety." However, SKs are typically programmed NOT to return to their native hosts if doing so might create incriminating datatrails to their creators.

If an SK is destroyed on a mission, of course, its creators can generate another one on the native host. Doing so is expensive, but it costs less than paying off a corpdecker's life insurance policy.

TRUE AI

True artificial intelligence (AI) programs are fully self-aware, self-sustaining, immensely powerful Matrix programs. Ultimately, every gamemaster must decide how many—if any—AIs he wants to introduce into his game. Generally, AIs should be incredibly rare. Nothing will take the mystery out of this new life-form faster than having an AI turn out to be the "threat of the week" every time the players turn around. If an AI is involved in an adventure, the gamemaster should consider carefully why the program is taking a hand in events, what it expects to get, and how it will deal with any threats to its safety that might arise. Indeed, in most cases an AI will go to great lengths to prevent deckers from discovering its true identity.

Of course, the shadows have long been rife with rumors of living programs, so an AI may decide its secret is safe—after all, anything the player characters say may be discounted as just another rant by some deckhead who's running his ASIST power a little too hot. Of course, an entity that can transfer funds from anywhere on the Matrix into credsticks and e-mail directives to human hirelings can easily use more forceful means of silencing troublesome Matrix runners.

The weakest form of newborn AI would be on a par with an SK, but with self-regenerating ability—perhaps the power to create a native host environment on any sufficiently powerful computer. More powerful AIs might possess the ability to weave together wasted memory, dataspace, and distributed processing power on scores of hosts into virtual "pocket universes" in cyberspace—ultraviolet systems independent of any single host, systems that are everywhere and nowhere.

In addition to all the ratings that SKs possess, AIs also have Threat Ratings. The Threat Rating may be used as extra dice for all the AI's tests, in the same manner as physical characters' Threat Ratings. A typical newborn AI has a Threat Rating of 1; more mature AIs have Threat Ratings of 4 and up.

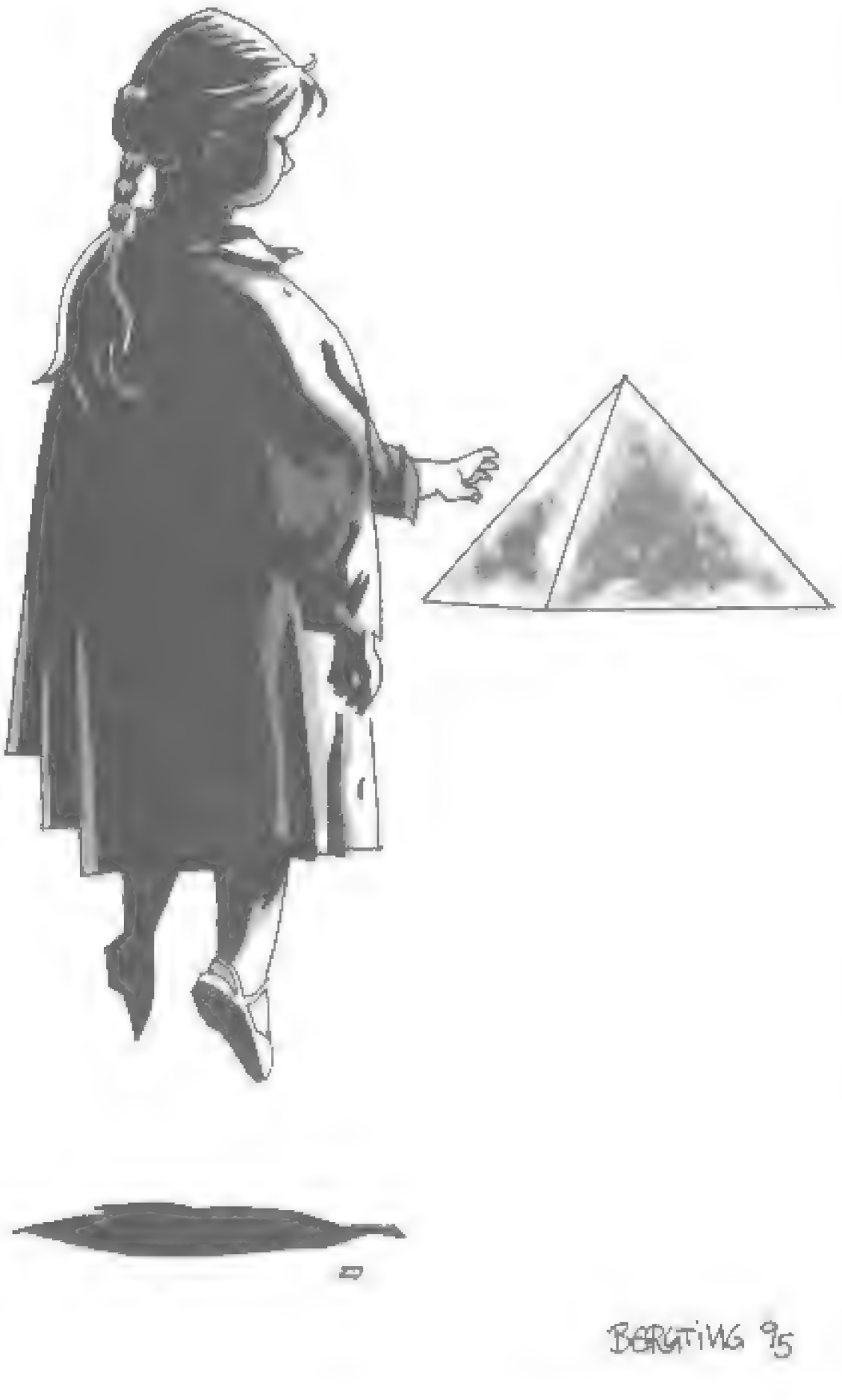
The main thing to remember when roleplaying AIs is that these programs exist independently of human control. They are not restricted to any single mainframe. They are self-aware, self-directing, self-sustaining life-forms. In effect, they are superhuman deckers with superhuman Matrix powers, unburdened by physical bodies. Of course, AIs are not human, and their consciousness and motivations may just be their most mysterious, incomprehensible aspects.

THE OTAKU

They just do it. And the Matrix does what they want.

—Perri, decker

Consider the *otaku*, the so-called children of the nets. Fast coming into their inheritance, the oldest known otaku are in their late teens today. And their numbers keep growing—some otaku reportedly go under the laser for their first jack as young as seven or eight. No one knows for certain, however, how many otaku exist or their true influence on the Matrix. In fact, many observers deny the existence of the otaku altogether. Despite the lack of statistically significant evidence, rumors that these mysterious individuals ply their remarkable skills in the net refuse to die out of the decker community.



BERGTING 95

The role of the otaku in his **Shadowrun** game is entirely up to the gamemaster. He may choose to leave them offstage—almost legends, like those presented in **Denver, The City of Shadows,** with powers and limitations unknown to the players. Or the gamemaster may use the model presented here, but limit the otaku to non-player-character roles. Or the gamemaster may allow players to create otaku characters.

BECOMING OTAKU

Some experts claim that several otaku communities exist, each with its own distinctive subculture. However, all share certain behavior patterns. First, the otaku communities seem to select new members according to a highly intuitive process. In most cases, it seems that established community members bring in recruits from the streets, prompted to do so by some inner voice.

Many otaku recruits spend their earliest years scrabbling for basic survival in the worst barrens of Seattle, Denver, and DeeCee. Some rumors tell of children as young as two or three found on the doorstep of otaku communities. Once a child is accepted into an otaku community, he undergoes a probationary period. During this time, he begins to learn the ways of the Matrix. Candidates begin hands-on Matrix runs almost at once. They start with tortoises, then move up to 'trode connections to live decks. After an unspecified period of time, a recruit either leaves the otaku community or accepts a datajack implant and begins running on hot decks. By this time, most otaku are the equals of veteran deckers.

Many candidates stop at this point, leave the community and go on to become novahot deckers, programmers, and deckmeisters. Others—those who show the deepest, most profoundly imprinted understanding of the Matrix—undergo an experience which changes them forever. Those who experience the so-called Deep Resonance become capable of interacting with cyberspace using only an implanted digital/neurological ASIST converter and their bare brains. These otaku are known among deckers as technoshamans and cyberadepts.

THE DEEP RESONANCE

Otaku who experience the Deep Resonance are capable of running the Matrix without cyberdecks. Apparently, the Deep Resonance transforms the individual, just as an awakening of magical power transforms a latent shaman. In fact, some alleged otaku who have spoken of this event use terms reminiscent of the totemic experience of the shaman. Others speak of suddenly perceiving interlocking energies and formulae, in the manner of a mage.

Both sets of experiences seem to indicate that the otaku forms a virtually mystical relationship with the Matrix and begins to view the nets as a living entity. Whatever the reality behind the Deep Resonance experience may be, it appears to cause permanent neurological change in the otaku that permits "decking" without a deck. The neural interface of the otaku's implanted datajack begins to interact with the redundant holographic capacity of the brain as if it were a bioprocess computer—which, of course, it is.

BUILDING AN OTAKU

Otaku may be of any race. Human otaku must assign Priority A to Resources. Metahuman otaku must assign Priority B to Resources, or A if their gamemaster allows the **More Metahumans** option (p. 46, **SRII**).

The otaku character does not receive the usual benefits of Priority A or B Resources. See **Allocating Resources**, p. 145.

Magic is Priority E for otaku. There is no known instance of a magically active otaku. Human otaku assign Priority D to Race, and must allocate Skills and Attributes between Priorities B and C. Metahuman otaku in a standard game must allocate Skills and Attributes between Priorities C and D.

ALLOCATING ATTRIBUTES

The racial maximums for otaku characters' Mental Attributes are raised by 1. Reduce racial maximums for Physical Attributes by 1. These modifications reflect potentials that seem to be inherent in the children chosen to be otaku.

If a player allocates only 1 point each to *all* of the character's Physical Attributes and halves his racial maximums in those attributes (round fractions up), he receives 2 extra Attribute Points to allocate to his Mental Attributes any way he wishes. Also in this case, increase the racial maximums for the character's Mental Attributes by a total of 2 rather than 1. This represents a common pattern among many otaku, whose subnormal physical development, even disabilities, are coupled with extremely high IQs and determination.

ALLOCATING SKILLS

An otaku must allocate at least 6 and no more than 8 points to his starting Computer Skill. He may concentrate in Software or specialize in Decking.

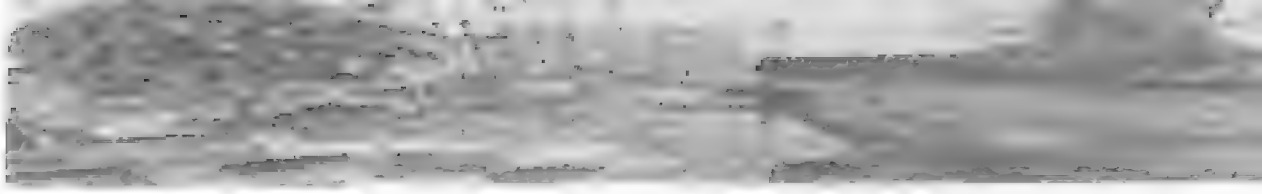
Any Channel skill (see **Channels**, below) may have a beginning Rating of 6. One other Channel skill may have a Rating 5, and a third Channel skill may have a Rating 4. The beginning ratings of all remaining Channel skills may not exceed 3.

The only Etiquette skills the otaku may possess when he enters the game are Matrix and Street.

All these restrictions apply only when creating an otaku character. Players are free to improve skills during the game to make the otaku more well-rounded. Remember that most otaku, at the beginning of their careers, are a weird mix of nearly autistic street kid and sophisticated techhead—with extremely limited life experiences. These rules are designed to simulate that profile.

Channels

Otaku learn five special skills that act as operational utilities when the otaku perform System Tests. These skills, called *channels*, are named for the five subsystems of Matrix computers: Access, Control, Index, Files, and Slave. Whenever an otaku makes a required Subsystem Test during a system operation, he uses the appropriate channel to lower the test target number. For



example, an Analyze Security operation requires a Control Test. A normal decker could lower the target number for the test with an analyze utility. An otaku with Control Channel would use the Control Channel Rating instead.

When creating an otaku character, a player receives a number of points equal to the average of his Mental Attributes ([Intelligence + Will + Charisma] ÷ 3, round up). He can distribute these points among his channels as he wishes. Regular skill points can also be used to increase the channel ratings.

Once the otaku character is in the game, the channels can be improved like any other skills, using Karma Points.

The basic channels are general skills. Concentrations that mimic the action of each specific utility exist as well. For example, Control Channel (Analyze) would only be effective when making Control Tests for System Operations that normally require an analyze utility, such as Analyze Host and Analyze IC operations. Specializations for the otaku channels are limited to a single operation—Files Channel (Edit File), for example.

ALLOCATING RESOURCES

The high Resource priority for otaku is dedicated to their skill benefits, their background, and the toll exacted by the Deep Resonance experience. Therefore, an otaku character receives only 5,000 nuyen for additional outfitting, as if his Resources were Priority D.

PROGRAMMING DAYS

Every otaku receives an allotment of days that he may spend programming utilities according to the rules for **Complex Forms**, below. The allotment equals the character's Computer Skill multiplied by 3. In addition, he receives the standard otaku task bonus: (Intelligence Rating + Charisma Rating) ÷ 4.

The player can allocate these days any way he likes. Any programs in progress at the start of play can be finished during the game, as with any incomplete task.

LIVING PERSONA

The Deep Resonance creates the otaku's icon—his *living persona*—based on the character's Mental characteristics. The appearance of the living persona usually follows the customs of the otaku community where the character was raised.

MPCP: (Intelligence Rating + Willpower Rating + Charisma Rating) ÷ 3 (round up)
Bod: Willpower Rating
Evasion: Intelligence Rating
Masking: (Willpower Rating + Charisma Rating) ÷ 2 (round up)
Sensor: Intelligence Rating

Response: ([Intelligence Rating + Willpower Rating] ÷ 2 [round up]) + 3D6 Initiative
Armor: Willpower Rating
Hardening: Willpower Rating ÷ 2, round up
I/O Speed: Intelligence Rating x 100 Mp

ENHANCED ATTRIBUTES

Cyberware that improves an otaku's Mental Attribute adds its effect directly to the living persona's ratings. For example, an otaku who receives a Cerebral Booster-2 implant would modify his living persona's ratings to reflect his increased Intelligence Rating.

Improvements to the Mental Attributes bought with Karma Points raise the living persona's ratings as well.

The aspects of Charisma that operate in the living persona are self-image and self-confidence. Cosmetic aspects are trivial in this regard. Therefore, any purely cosmetic enhancements to an otaku's Charisma Rating, or those aimed at enhancing Social Skills, do not affect the living persona ratings. For example, tailored pheromones (p. 18, **Shadowtech**), do not increase an otaku's living persona ratings.

For reasons yet unknown, magical enhancements do not affect the living persona. They affect only the otaku's actions in the physical world.

RESPONSE

An otaku's Reaction Rating in the Matrix is equal to the average of his Intelligence and Willpower ratings. He receives 3D6 for Matrix Initiative.

ARMOR / HARDENING

The living persona's online Armor and Hardening ratings against gray or black IC are based on the otaku's Willpower Rating. Both can be raised by creating the appropriate Complex forms.

COMPLEX FORMS

In addition to the five channels, otaku can "program" versions of other operational utilities for their own use. The otaku call such utilities *complex forms*. In reality, the otaku does not actually "program" a complex form—he alters the holographic nerve complexes of his own brain to produce the effects of the program.

In game terms, however, an otaku creating a complex form follows a five-step process. The steps are: selecting the complex form rating, paying necessary Karma Points, determining the complex form size, calculating the base time for carrying out the task, and then performing the task.

The rating of a complex form may not exceed the otaku's Computer Skill or an appropriate concentration or specialization of that skill. After selecting the complex-form rating, the otaku must pay a number of Karma Points equal to the rating.

Next, determine the size of the complex form. The size is calculated in the same manner as a program size, using the following formula:

([Complex form rating^2 x utility multiplier) + (option rating^2 + option multiplier) = size in Mp

The utility multiplier is the multiplier of the operational utility the complex form mimics. Otaku may also include options with a complex form, as indicated in the formula. However, options

such as optimization, squeeze, and other space-savers are neither required nor allowed with complex forms. Remember, the complex form is not stored on a deck—it's stored in the otaku's brain. The complex form size is used only to determine the base time for creating the complex form, not for storage or uploading.

After determining the complex form size, calculate the base time for the task, using the following formula:

Complex form size x 2 = base time in days

The otaku may reduce the base time by using his otaku task bonus:

(Intelligence Rating + Charisma Rating) divided by 4 (round up) = otaku task bonus

The otaku task bonus effectively reduces the number of days needed to complete the task, just like a standard task bonus (see **Task Bonuses**, p. 77 in **Deckers**, for an explanation of task bonuses). In addition, an otaku may add 1 point to his task bonus by spending a number of Karma Points equal to the complex form rating. For example, an otaku creating a Rating 7 complex form could spend 7 Karma Points to increase his task bonus by 1 point. The same otaku could spend 14 Karma Points to increase his task bonus by 2 points, and so on. After applying all task bonuses to the base time, the otaku spends any of his allotted programming days to perform the task of "programming" the complex form into his brain.

The base time for upgrading a complex form is calculated in the same manner as base times for upgrades of standard programs (see **Upgrades**, p. 107 in **Programs**). When upgrading a complex form, the original version of the program keeps working normally until the programming task is completed. At that time, the form's new rating or features kick in. When upgrading a form, the otaku must spend a number of Karma Points equal to the final rating of the upgraded form.

The otaku cannot upgrade his persona or MPCP ratings as complex forms, because these features are pegged directly to his Mental Attributes. However, an otaku can upgrade his Armor and Hardening ratings. The otaku must upgrade based on his inherent ratings. For example, if an otaku has Willpower-6, he has Armor-6 automatically. To upgrade his armor as a complex form, the otaku must upgrade it to 7 or higher.

SPRITES

The otaku call program frames *sprites*, and reputedly make wide use of them. An otaku creates frame cores per standard rules (see **Frames**, p. 105 in **Programs**). Otaku may not use frame cores created by another individual. Each otaku must create his own. Additionally, the otaku must spend a number of Karma Points equal to the frame Core Rating.

After completing a frame core, the otaku can load it with any complex form he possesses, as well as operational utilities. The rating of a complex form on the sprite may not exceed the otaku's own rating in that form. Similarly, the rating of any operational utility loaded onto the sprite may not exceed the otaku's rating in the corresponding channel. When loading operational utilities, the otaku follows the standard rules for loading a frame (see **Frames**, p. 105, in **Programs**).

At this point, the otaku has the option of spending a number of Karma Points equal to the sprite's complex form and utility ratings to strengthen the sprite. If the otaku does so, the sprite becomes temporarily disabled if it crashes. The sprite remains intact and becomes available again as soon as the otaku jacks out of the system. If the otaku does not spend these Karma Points, the sprite is permanently wiped clean if it crashes. The frame core survives intact, but all complex forms and utilities must be reloaded.

OTAKU AND THE SOTA

The Deep Resonance experience enables otaku to continuously adapt to changes in the Matrix (some otaku claim that the Deep Resonance itself causes all change in the Matrix). Therefore, otaku are always in synch with the SOTA and do not have to take any action when it advances.

OTAKU AND DAMAGE

The intimate link between the otaku and his living persona created by the Deep Resonance experience also makes otaku more vulnerable to damage than standard deckers.

Any damage to an otaku's Icon condition monitor also does damage to the otaku's Mental Condition Monitor. Black IC programs attack the otaku's Physical Condition Monitor, just as black IC does against normal deckers.

Gray IC is especially dangerous to otaku. If the living persona suffers permanent damage to a Persona Rating, the rating remains reduced until the otaku can upgrade it back to its original level—this is the one exception to the rule that otaku can't program their Persona Ratings. On the other hand, this programming task does not require Karma Points, only time.

Damage to a complex form caused by tar IC or hog programs puts the form out of action until the otaku can jack out. Complex forms regenerate from such damage at a rate of 1 point per hour, but do not recover at all if the otaku is suffering from damage to either his Mental or Physical Condition Monitor. The otaku must heal Condition Monitor damage before his complex forms regenerate.

On the upside, an otaku's channels are not vulnerable to tar IC and hog programs. An otaku can use his control channel all he likes in the presence of tar baby, and the IC will not react to it.

Additionally, otaku are immune to actual virus codes, such as worm programs.

PLAYING AN OTAKU

You don't know who birthed you, whether they dumped you or died on you. Didn't make much difference back there. Cold and hunger were your heritage, scrounging half-spoiled stuffers out of trash dumps, hiding from the bigger kids who'd

take them away. From time to time, the word flashed through your tiny world that the hunters were out, and with the stink of your fear cutting sharp even through your normal reek, you went to ground until they were gone. Now you know who they might have been. The list is long: sweepers for the kiddy shops, organ-leggers looking for easily implanted young tissue, "sporting" folks hunting prey that could run and think and maybe beg for mercy. But there wasn't any mercy back there. Not for anyone.

You survived somehow. Then one day you found a handful of older kids around your hidey-place. They didn't look like the kids you knew. Now you know the difference between malnutrition and health, between clean clothes and dirty rags. Back there, you just knew they looked different. And they talked to you and brought you here.

They showed you new things and gave you words for them. They taught you numbers, and what the numbers did. They taught you a new thing you liked almost better than anything. You learned it was called friendship.

They gave you your first datajack and showed you how to use it. Then you discovered the Deep Resonance and began to learn the channels, the complex forms, the ways of your new-found home—the Matrix.

Playing an otaku means that your character, in all likelihood, spent his earliest years as an abandoned child in an environment of extreme poverty—surviving by begging, theft and scrounging, and subject to the predations of some of the worst walking garbage in the Sixth World. Older otaku recognized the potential to become an otaku in your character and rescued him from this life. They gave him food, shelter, education, and a sense of community—the first he ever experienced.

Outside the tribal structure of his otaku community, your character may be significantly socially handicapped, wholly deficient in social skills. Of course, mental stability has to rank high in the things otaku look for in new members, or they'd all be crazy as bedbugs after such severe childhood trauma. But you aren't going to find an otaku who comes across like a cute kid from a sitcom, either. Don't expect non-otaku to like your character too much; they're going to think he's weird and they'll probably make tracks to avoid him whenever possible.

At their best, young otaku are often rude and anti-social, even by shadowrunner standards. They are arrogant in anything involving the Matrix and more than half convinced that nothing outside the Matrix matters a frag unless it affects their personal comfort or security. The well-being of fellow otaku in their own community is important to them. The well-being of other otaku comes next. Personal friends, if they have any, third, and the rest of the world a very distant fourth. These priorities may manifest themselves as intensely brattish behavior or as cold-blooded ruthlessness without a trace of what the shrinks call "affect." Certainly, otaku can grow into more well-rounded human beings, given friendship, responsibility, even trust, within the shadow code. But no one is likely to enjoy the company of an otaku while he matures.

CYBERADEPT OR TECHNOSHAMAN?

Otaku fall into two broad groups: the cyberadepts and the technoshamans. Both groups exhibit identical abilities, but they hold different views of the Deep Resonance and their own places in the world.

Cyberadepts are rationalists, technophiles—perhaps psychologically more attuned to the specific workings of programs and the organization of data than other otaku. They view their state as a natural and inevitable blending of humanity and technology and tend to express their concepts in precise terms, almost formulae.

Technoshamans see the Matrix as a living being, which they have learned to blend with spiritually. They are more mystical, more holistic in their descriptions of computer operations and performance than other otaku. Many technoshamans maintain that the Deep Resonance proceeds from spirits resident in the Matrix.

If the gamemaster wants to play up these differences in his games, he may apply the following cyberadept and technoshaman bonuses:

Cyberadepts apply a +1 modifier to the effective rating of any complex form they learn. They must create the form before getting this bonus, but it does not affect the size of the form. This bonus reflects the cyberadepts' particular insight into the details of Matrix operations.

Technoshamans reduce target numbers by 1 when using their channels. This bonus reflects their approach to the Matrix as a gestalt with which they blend.

Players choosing one or the other of these orientations should roleplay their character accordingly.

MYSTERY OF THE OTAKU

Even the otaku don't know why they experience the Deep Resonance. The technoshamans of the Denver Nexus claim that the work of Shiva and the other sysops who maintain the Nexus has somehow created a cyberspace where they, the true children of the Matrix, see deeper into its truths than the old-tech dinosaurs. Some of them believe that true Spirits of the Matrix exist in this environment. Others claim the Deep Resonance is an actual evolutionary step, and that cyberadepts are the next step in the long march from the first hominids.

Among non-otaku, even wilder theories abound. Some older elves agree with the technoshamans that a Great Spirit has learned to manifest in the Matrix, native to the Matrix the way other nature spirits are native to their domains. A very experienced decker in Seattle advanced the theory, before he disappeared, that the Virus of 2029 had evolved into a cybernetic lifeform, as homo sapiens evolved from the primal goo of Earth's earliest seas, and that it was helping the children of the Matrix evolve into a form similar to its own. A top-secret report to the board of Aztechnology suggests the existence of a super-AI somewhere in cyberspace, which is now functioning independently and using the otaku as its agents. Hard to say what else

the author thought. She committed suicide a few days after submitting the final draft of her report, which her superiors dismissed as the work of an unbalanced mind. A reporter in Berlin left partial notes suggesting that aliens from outer space were taking up residence in the Matrix and grooming earth children as a conquering army of netsoldiers. His editors considered running the story after the traffic accident, but couldn't find the rest of his files, so they spiked it instead.

Given this track record, other folks with theories about the technoshamans and cyberadepts may be playing it smart by keeping quiet.

Regardless of these differing explanations, the experience of the Deep Resonance follows certain patterns. Technoshamans report a sudden transport to a place unlike any in their Matrix or physical experience. Here they encounter a being, or beings, who give them the seed knowledge that grows into their ability in the Matrix. Cyberadepts, on the other hand, claim that they know they are still in the Matrix, but perceive connections and networks of dataflow that transcend the interface of the deck. Both emerge from the experience with the abilities described in this text. Sometimes they enter these states again, and when they return they have gained new abilities or received a mission which they must carry out.

WHAT'S REALLY GOING ON?

Good question. Those who may know are not saying. Sometimes otaku undertake specific missions, which they claim come from the Deep Resonance. These missions can be trivial or major. Trivial missions include ensuring the delivery of programs to specific places at specific times, the kind of low-level gigs that secure courier services usually handle. Major missions have involved preventing certain corporations from achieving specific goals; neutralizing, or killing magicians involved in certain research or cooking the research files to sabotage the projects; and preventing (or ensuring) certain deaths—either apparent accidents or deliberate assassinations.

Often, otaku on a mission seem devoid of anything a human would recognize as compassion. But in the main, otaku missions turn out to be for the benefit of liberty and of humanity at large, once the patterns become discernible—as if they were dictated by some source that perceives the interplay of seemingly unrelated, even trivial, events in the world community bound together by the Matrix. The real Ghost in the Machine? Or children playing at deity with powers that their elders cannot control?

Despite the information on the otaku that exists, far more remains unknown about these individuals. If some type of guiding force exists behind the otaku, why has it chosen an army of children with virtually no experience of life outside the Matrix? And why the different experiences of the technoshamans and cyberadepts? What could cause changes in the human neural net that 21st-century geneticists cannot understand, let alone replicate?

Perhaps future explorers of that strange universe called the Matrix may one day find answers to such questions.

MATRIX HOT SPOTS

Okay. Now for the bad news ...

O

-Anonymous

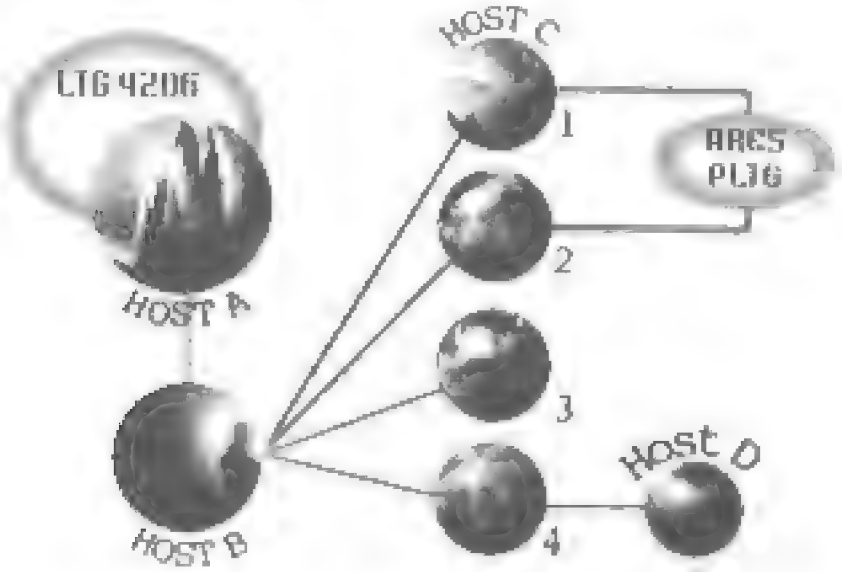
This section provides gamemaster-only information. Players shouldn't read any fur ther. Really.

Matrix Hot Spots offers three typical Matrix systems, hosts that gamemasters can use "as is" or jazz up by designing new security sheaves. Actually, gamemasters should put on their "evil corporate system security designer" hats and change the material that appears below. That way, any players who read this chapter (hey—you ... yes, YOU—did you think we didn't know you were still reading this!?!) will be taken entirely by surprise. Ha.

ARES MACROTECHNOLOGY

Regional Sales Net

LTG: NA/UCAS-SEA-4206-555-6583



They say Ares is so far behind the SOTA that it's almost not worth decking their boxes. That rotting pile of stuffers must be info uploaded by the Ares pubflacks, 'cause if you believe that, we've got a great deal on resort homesteads in the Jersey Toxic Zone for you. Ares engineers its systems for maximum dataflow overview. Transaction packets and data streams transmitted between individual hosts in a local net must pass through heavily loaded chokepoints. The working mainframes themselves are relatively IC-free, which promotes maximum efficiency, while the chokepoints provide the focal point for Ares data security.

The Regional Sales complex shown here is a tiered system that opens onto the public grid through Host A, an open-access Green system where Ares displays promotional sims and non-classified product data files to clients. Hidden behind the salesroom is the chokepoint labeled Host B. This guards the more sensitive systems but doesn't carry any paydata itself. Host B is the hub for Hosts C1 through C4: Accounting, Tech Support, Sales Management and Maintenance, respectively. Both C1 and C2 provide gateways to the area-PLTG backbone. Hosts C1 through C3 provide some useful paydata.

C4, the Maintenance area, includes most of the slave nodes a team would need on a ground insertion into the office building. The real hot stuff—exec data files, secure e-mail and the security slave nodes—take up space on Host D, networked to C4.

Other valuable Ares hosts may be located and accessed through the PLTG.

Host A: Green=5/8/10/8/10/10

Paydata: 0

Host A is designed as a standard office/salesroom metaphor mixed with UMS iconography, so pedestrian it doesn't count as sculpture. Any reality filter will automatically dominate Host A. Deckers searching for paydata find only some entertaining sims (the military hardware ones are terrific) and catalog entries for Ares products of all kinds.

Viewing sales files and promos does not require an operation or affect the security tally. Any decker with a credstick to slot, drawing on a legit account or a certified balance, can order any Ares product through this host. Just like a customer who logged on legally. Getting an order accepted without paying would require a run into Host C1 to insert a false payment record into the Accounting database.

The Access subsystem contains a dedicated port to Host B. A successful Analyze Access operation will reveal the address.

Host A Security Sheaf

Trigger Step	Event
6	Probe-6
11	Trace-7
16	If Jackpoint not located: Trap Trace-8 (Killer-7) If Jackpoint located: Passive Alert
21	Expert Killer-7/Offense +2
25	Active Alert
31	Blaster-7 (Armor)
35	Trap Probe-7 (Blaster-6 (Armor))
40	Shutdown

Host B: Orange=10/14/15/16/14/18

Paydata: 0

Host B is a very nasty chokepoint, but it's standard UMS icons all the way. A reality filter will give the decker an advantage on this host.

The security tally on Host B accumulates throughout a run on this system. That is, if a decker chalks up 5 points getting through Host B to Host C1, then accumulates 2 more points performing a Logon to Host operation to return to B from C1, the Security Tally on B now totals 7. Passive IC programs triggered on Host B, including Trace, do not run while the decker is on another host, but resume where they left off as soon as he logs back on to Host B. Active IC programs will follow the decker from Host B if he logs on to any other host in the network!

Host B Security Sheaf

Trigger Step	Event
4	Trace-10
7	Probe-8
11	Trap Probe-10 (Killer-8)
16	Passive Alert
19	Acid-10 (Armor, Shifting)
22	Expert Blaster-12/Defense +1
26	Active Alert
30	Expert Construct/Offense +2 (Armor) Blaster-7 Acid-5 Tar Baby-4
35	Black IC-8 (Armor)
38	Shutdown

Network C: Green=7/12/13/15/12/13

C1 (Accounting) Paydata: 8
C2 (Tech Support) Paydata: 5
C3 (Sales Management) Paydata: 6
C4 (Maintenance) Paydata: 4
Paydata Density: 2D6 x 15 Mp

The C systems all have identical software, including the IC, but the sculpture on each one is different. Passive IC on a C host, including Trace, will shut down when a decker logs off that host. Active IC will pursue the decker to another part of the C network and onto Host B. Security tallies remain in effect on any C host. For example, if a decker accumulates a Security Tally of 4 on C1, logs back onto Host B, and later in the same run logs back onto C1, his tally picks up at 4.

The sculpture on C1 is standard office decor at first blush, but the helpful secretarial icons are all tuned up to cutting-edge, male fashion model dress and good looks. The supervisory programs are all female. It's heavily seated sculpture, subtle but solid. A decker would be well advised to load a top-line, fem-exec look if he decides to "dress" his MPCP for a run into this system.

The C1 metaphor dates from when Regina O'Meara edged out Ted Harcourt as the local head of accounting. Harcourt had mandated pornsim queens as the main iconography for the server programs when he was in charge. Modesty prevents us from describing the way they'd acknowledge a successful access, but some deckers used to log-on and open absolutely worthless files just for the experience.

The metaphor on C2 is an old-style amusement park. The roller coaster is the Index access to all the low-security files. Deckers swoop and scream until they reach the right datastore, then the car JUMPS off the tracks and sails through the air into the file area.

The high-security spec files follow a fun-house motif.

The gateways to the PLTG are in the Access subsystems on both C1 and C2. Scramble IC protects both SANs, so a decker needs to perform a successful Decrypt operation in order to log-on to the PLTG.

C3 uses a standard office motif, though it does count as a sculpted system.

Techno-flash control panels showing readouts on the building environmentals, the elevators and plumbing fill C4—everything's here except security sensors and alarms, which are resident on Host D. The client servers use well-sculpted custom iconography consisting of shiny robots with goofy smiles pasted on their faces. The rest is mostly UMS iconography. The trap door to Host D rotates randomly through all the subsystems nanosecond by nanosecond, and so a decker must search for it every time he needs to find it.

Network C Security Sheaf

Trigger Step	Event
5	Construct (Armor)
	Killer-5
	Probe-2
	Trace-5
9	If Jackpoint not located: Trace-6
	If Jackpoint located: Killer-6
13	Passive Alert
18	Mark-Rip-7
24	Blaster-6
29	Active Alert
33	Sparky-7
37	Expert Black IC/Offense +2
42	Shutdown

Host D: Red=9/15/14/16/14/16

Paydata: 11
Paydata Density: 2D6 x 5 Mp

Host D offers a 2 in 6 chance of any given slave system being rigged with a Data Bomb-6. The host's sculpture is modelled on a giant chess game. The darker the IC chasing the decker, the higher ranking the piece(s) that represent it: pawns for probe IC, knights for trace IC, and the black IC uses the queen icon.

Host D Security Sheaf

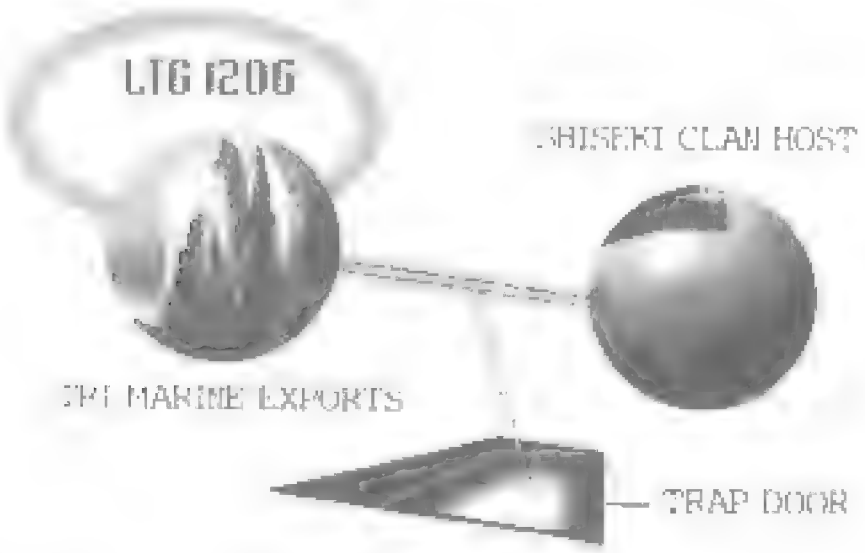
Trigger Step	Event
3	Construct (Shifting)
	Killer-6
	Trace-6
	Tar Baby-4
5	Probe-8
8	Killer-8
10	Passive Alert
14	Sparky-10
16	Binder-8
19	Black IC-10 (Armor)
22	Shutdown

SHISEKI-GUMO

They used to say "crime doesn't pay." Whether or not that was ever true, it sure ain't true in the 21st century. It pays so well even crooks need bookkeeping computers and grid access to keep track of things. The Shiseki-gumo, a mid-level yakuza syndicate in the Seattle area, is no exception. Their operations include smuggling black tech between North America and Asia, industrial espionage, and providing secure communications for low-budget shadowrunners, fumbling white-collar criminals, and other naive souls who don't realize that the secret you pass on

someone else's network today is the stuff that gets you blacklisted tomorrow.

The syndicate keeps its working host stashed behind a cover operation down on the waterfront by the name of Tri-Marine Imports. The Tri-Marine host looks like any other small business system and a decker makes it mad. That triggers a bouncer from Green to Red and drops IC all over the place. When the bouncer kicks in, the Tri-Marine machine also switches from UMS to a sculptured system.



A trap door routine connects Tri-Marine to the syndicate's real host. The code is movable, with mimetic routines that let it reside in any subsystem.

The Shiseki's real ops computer is sculpted to use a military history metaphor. All servers put a decker's persona right in the middle of a historical battle, from any period of any culture's past. Because it constantly switches periods, decker's find it almost impossible to preset their MPCP iconography to fit the metaphor.

It is worth noting that the yak possess a fierce reputation for investigating, pursuing, and terminating anyone who decks their systems, any accomplices or associates of those deckers, and anyone who buys hot data stolen from them—all as an example to others. Deckers should know this going in, and if they decide to try their datasteal anyway, should invest in the best camo utilities and other defensive software available to defeat trace IC.

Tri-Marine Exports: Green=4/10/9/10/8/9

Paydata: 0

Whichever subsystem holds the trap door to the Shiseki Clan host is infected with data worm IC.

Tri-Marine Exports Security Sheaf

Trigger Step	Event
4	Probe-8
9	Probe-8
15	Probe-8 (Note: If multiple probe IC programs are running, all of them try to raise the security tally when the decker performs an operation)
19	Bouncer: Upgrade Security Code to Red; Switch to sculpted IC, modeled on a mixture of different hell/underworld legends. Demons and devils from western myths, the Furies of Greece tormenting the doomed souls in Tartarus, the Eater of Souls from Egypt, Dante's Inferno, mixed with the Taoist hells of China, and so on.
21	Passive Alert
23	Killer-8
27	Active Alert
30	Cascading Psychotropic Black IC-8 (Judas Syndrome)
38	Shutdown

Shiseki Clan Host: Red=10/16/18/14/16/14

Paydata: 13

Paydata Density: 2D6 x 5 Mp

All System Tests involve apparent combat, whether individual or as part of a military unit, from the following historical periods:

Access: Martial Arts or specific periods in Japanese military history

Control: Classic Greek or Roman

Index: American Civil War

Files: Medieval

Slave: World War II

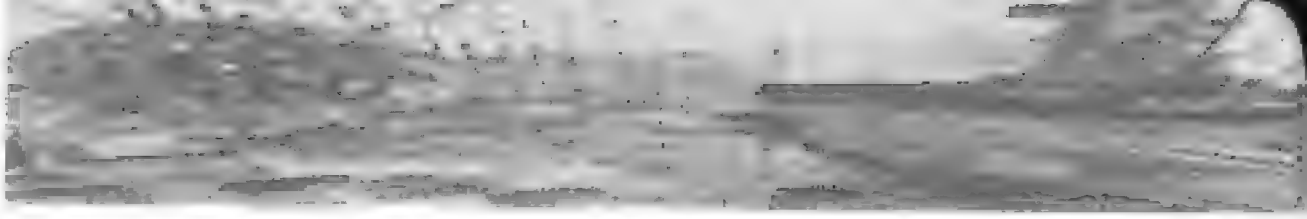
IC always assumes an appearance in keeping with the metaphor in which the decker is working, almost always as another figure in the combat setting. Until the IC lands a damaging attack, the decker might believe he is making a System Test and not realize he is under attack.

All secure datafiles are loaded with data bombs (this includes all paydata).

The Slave subsystem has no function on this host. That is, the computer doesn't control any external processes.

Shiseki Clan Host Security Sheaf

Trigger Step	Event
3	Construct (Armor) Probe-6 Trace-6 Killer-6
5	Trace-10
8	Passive Alert
10	Trap Probe-8 (Cascading Blaster-6)
14	Tar Pit-10
18	Active Alert
21	Construct (Expert Offense +2 (Shifting)) Killer-7 Blaster-7 Tar Baby-2

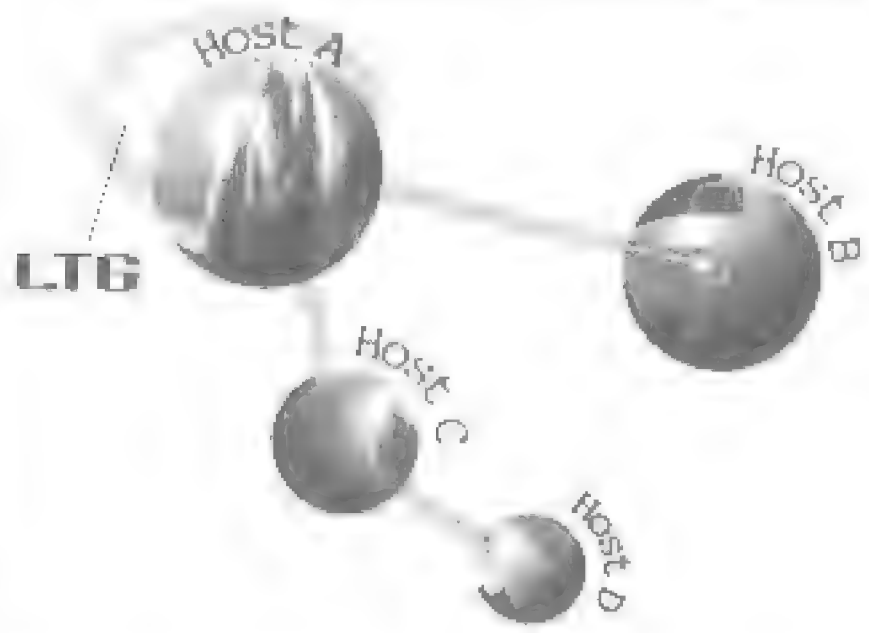


Trigger Step	Event
24	Blaster-10 (Armor, Shielding)
27	Black IC-8
31	Shutdown

FEDERAL RECORDS

If a decker has a death wish, he might as well use it constructively. Raiding any of the federal offices in Seattle or elsewhere can be very profitable—unless you crack black dataspace and get fried.

The diagram above illustrates the typical setup to be found in almost any UCAS office outside of DeeCee (the systems in the capital are much, *much* nastier). This is a non-secure system, one that connects to the grid. High-security sites like the IRS, FBI and black military systems keep their most secret data on machines that have no grid connection. The systems that need an occasional chat with the outside world maintain heavily defended connections to the government PLTG.



Host A: Blue•4/8/10/9/9/8

Paydata: 2

Paydata Density: 2D6 x 20

Host A represents public dataspace. It might be the system that SIN-holders on public assistance access to collect benefits, or where a citizen logs on to renew a license, register a complaint, or otherwise interact with the feds. These hosts don't offer much improvement on the physical offices used in the pre-Matrix bureaucracies: long wait cycles, the most boring iconography on the grid, and surly I/O from clerical operators and expert systems.

The look and feel of Host A on a standard bureaucratic network is plain UMS, with a particularly stodgy quality that might as well be part of government requirement specifications, it's so prevalent.

Paydata exists here only in big, bulky packages—the almost-public records concerning business transacted on the host that are bound to be somehow valuable to somebody out there.

Slave systems here are pretty trivial, controlling lights, air conditioning and other amenities for the physical office where the local bureaucrats operate.

Federal Records Security Sheaf

Trigger Step	Event
6	A display appears noting the appropriate penalties for unauthorized operations on a government system. This icon is also on display when the decker logs on, and government software usually calls the icon back up whenever it "suspects" that something is amiss.
11	Probe-5
18	A display appears asking for the user to enter his SIN, comm code, and other information so that the system can verify his authorization. If ignored for more than 10 seconds, this icon triggers Trace-8 IC. If the decker wants to give the system false information he has to make a successful Control Test, or again, the Trace starts running. The icon can be killed, but counts as Passive IC for increasing the security tally when it crashes.
25	Active Alert
30	Trap Probe-6 (Blaster-7)
37	Federal or local Matrix law enforcement is alerted. A government decker arrives in 2D3 turns.
44	Shutdown

Host B: Green•8/12/13/14/12/13

Paydata: 6

Paydata Density: 2D6 x 15

Host B handles the day-to-day office activities for the site. A welfare office would keep records of recipients, payments, medical programs, and so on. A licensing operation would store records of permits issued, citations or violations, and so on.

If a decker is looking for specific material, rather than random paydata, this would be the place to go for private files stored (illegally) by low-level government workers. If the decker wants to rifle confidential (but not particularly secret) files—say, the service record of a particular employee—those records would be on Host B as well. Secure files connected to the operation of the office would be on Host D.

Trigger Step	Event
4	Probe-7
10	Trap Trace-6 (Killer-8)
15	Construct (Armor) Acid-6 Blaster-6
20	Passive Alert
24	Marker-7

Trigger Step	Event
29	Blaster-8 (Armor and Shifting)
34	Active Alert: A government decker arrives in 2D3 turns.
39	Shutdown

Host C: Orange or Red•11/14/15/17/16/18

Host C in this architecture is a chokepoint that controls access between the secure Host D, with its gateway to the government PLTG, and the open systems connected to the public grid. No pay data, useful slave systems, or other benefits on Host C—just nasty IC.

Highly secure government offices usually make Host C Red instead of Orange, and may be authorized to use deadly force—lethal black IC. Security sheaves for both Orange and Red configurations appear below.

Trigger Step		Event
Orange	Red	
4	3	Probe-8. The icon displays a disclaimer of responsibility for damage to equipment used to gain unauthorized access. If the system uses lethal black IC, the disclaimer includes a "Use of Deadly Force Authorized" display.
9	7	Tar Baby-8
12	9	Trap Trace-10 (Killer-8)
16	12	Passive Alert
21	16	Expert Construct (Armor, +2 Defense/-2 Offense) Trace-8 Tar Baby-4 Marker-5
24	18	Cascading Blaster-8
28	21	Active Alert: Government decker alerted. On an Orange host he arrives in 1D3 turns; on a Red host, he arrives on the next turn
31	23	Expert Construct (Armor and Shielding, +2 Offense/-2 Defense) Black IC-8. Non-lethal on an Orange host, lethal on a Red host. Acid-6
36	27	Cascading Black IC-7. Non-lethal on an Orange host, lethal on a Red host.
39	29	Shutdown

Host D: Green•10/17/18/13/15/14

Paydata: 9 (Paydata Density: 2D6 x 15 Mp)

This one's the treasure chest. In addition to the basic paydata, the type of secure data that shadowrunners typically need in an adventure are stored on Host D. The host also contains the SAN into the Federal PLTG.

Files such as crime reports implicating shadowrunners are stored here, but if they have been online more than a few hours, they will also have been distributed to high-security databanks (Red-Hard systems) through the PLTG. Erasing or modifying such records would involve an extremely dangerous run through the government grid.

The Access subsystem is protected by Scramble IC; until the decker decrypts it, his persona cannot log on to the host. All secure datafiles are protected by Scramble IC, data bombs, or worms.

Trigger Step	Event
5	Trap Probe-10 (Killer-11)
9	Party IC Tar Pit-4 Killer-10 Marker-6
15	Trap Trace-8 (Sparky-10)
20	Passive Alert
24	Probe-11
28	Construct (Armor) Killer-7 Acid-7 Probe-4
33	Active Alert: A government decker is alerted and will arrive in 1D3 turns.
39	Party IC Blind-rip-5 Acid-rip-5 Jam-rip-5 Mark-rip-5
43	Cascading Psychotropic Black IC-9 (Cyberphobia)
48	Shutdown

About Government Deckers

The following guidelines for government deckers also apply to corp deckers, or any decker retained to defend a system. The gamemaster may design an NPC decker of his own, but may use the following rules if he needs a quick-and-dirty decker character.

Government deckers may be defined as Inferior, Equal, or Superior opponents. An Inferior opponent has an MPCP Rating 2 points below that of the player-character decker. A Superior opponent has an MPCP Rating 2 points higher. An Equal opponent has an MPCP Rating—and everything else—equal to the player-character decker's. Similarly, an Inferior opponent has a Response Increase 1 point lower than the player-character decker's, and a Superior opponent's Response Increase is one point higher.

Persona programs for all government deckers are at their maximum. As a decker's total Persona Ratings cannot exceed 3 x MPCP and four programs make up a standard persona, the rating for each persona program ends up being three-fourths of the MPCP, rounded down. Government and corp deckers running without a Masking program have ratings equal to the MPCP for each persona program.

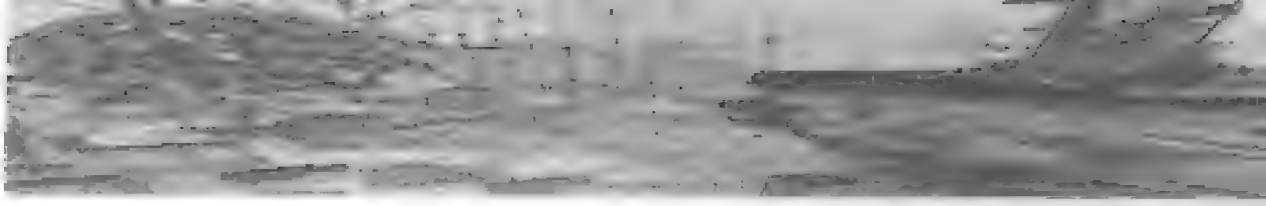
All utilities are at maximum value—equal to the MPCP rating. Inferior opponents should rarely, if ever, have utilities with options. Superior opponents should have programs with a little something special, at the gamemaster's discretion. An Equal opponent's utilities depend on the player-character decker—if the player character is loaded for bear, so is his opponent.

These NPCs usually carry Armor, Attack, Cloak, and Lock-On. They may also carry one or more utilities that attack Persona Ratings, especially if their job includes "softening up" the intruder for attacks by IC. Inferior opponents carry no self-repair programs. Superior opponents carry Medic and Restore. Equal opponents match the player-character decker's capabilities.

On systems where deadly force might reasonably be expected, any NPC decker may be armed with black hammer or killjoy. Government deckers are especially likely to carry track programs, as part of their department's job is to enforce Matrix law in the real world as well as on the grid.

These deckers use Legitimate icons on the hosts they defend, and so IC will not attack them. To attack these opponents, the intruding decker must use the appropriate target number to hit Legitimate icons (see **Cybercombat**, p. 123).

APPENDIX



HACKER HOUSE ACCESS

Baseline Bandwidth	Price	Availability
10 Mp	500¥	4/12 hrs
20 Mp	1,500¥	4/24 hrs
40 Mp	5,000¥	6/48 hrs

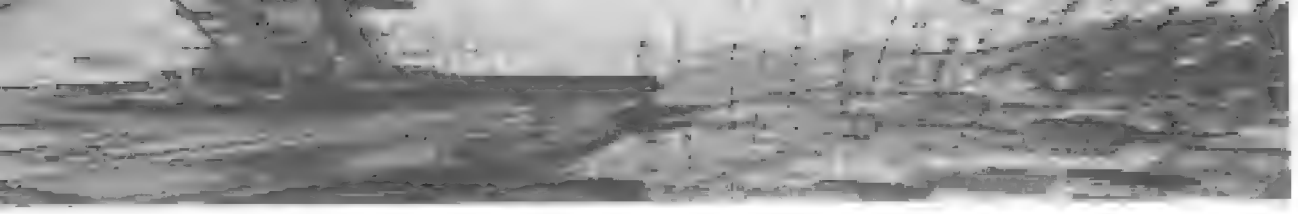
DECK CONSTRUCTION MATERIALS

Tool	Price	Availability	Street Index
Cybernetics Kit	1,500¥	5/48 hrs	2
Cybernetics Shop	15,000¥	8/72 hrs	3
Cybernetics Facility	300,000¥	14/7 days	4
Microtronics Kit	1,500¥	5/48 hrs	2
Microtronics Shop	15,000¥	8/72 hrs	3
Microtronics Facility	300,000¥	14/7 days	4
Personal Computer	20¥ per Mp of memory	Always	.75

Optical Chip Encoders	Device Rating	Task Bonus	Price	Availability	Street Index
Sony Encoder I	0	0	1,200¥	4/24 hrs	1
Fuchi OCE/500	1	0	2,700¥	6/24 hrs	1
Sony Encoder II	2	+1	6,000¥	8/72 hrs	1.5
Hitachi RM-AX	3	+2	9,500¥	10/7 days	2

Parts	Price
Chips:	
Optical Code Chip (OCC)	20¥ per Mp
Optical Memory Chip (OMC)	5¥ per Mp
Cranial OCC	200¥ per Mp
Cranial OMC	50¥ per Mp
Circuitry:	
Processor Logic Circuitry (PLC)	25¥ x Rating
Data Transport Circuitry (DTC)	10¥ x Rating
Cranial PLC	250¥ x Rating
Cranial DTC	100¥ x Rating

Component	Base Time	Target Number	Price
Casing:			
Basic (Impact-1)	NA	NA	Don't worry about it
Level 1 (Impact-2, Ballistic-1)	NA	NA	500¥
Level 2 (Impact-3, Ballistic-2)	NA	NA	2,000¥
Level 3 (Impact-4, Ballistic-3)	NA	NA	5,000¥
Hitcher Jack	48 hours	# of Jacks + 1	250¥
Offline Storage (OMC)	24 hours	3	50¥ + .5¥ per Mp
Vidscreen	12 hours	4	100¥



DECK COMPONENT PRICES

Program Rating	PF
1–3	100¥
4–6	200¥
7–9	500¥
10+	1,000¥

PERSONAWARE

MPCP
Formula: $MPCP^2 \times ([8 \times PF] + 195)$
PF Basis: MPCP

Bod or Evasion
Formula: $Rating^2 \times ([3 \times PF] + 95)$
PF Basis: Program Rating

Masking or Sensor
Formula: $Rating^2 \times ([2 \times PF] + 75)$
PF Basis: Program Rating

Memory
Active Memory: Mp x 7.5¥
Storage Memory: Mp x 6¥

ASIST Interface
Hot Deck: $(MPCP^2 \times [(PF \times 2) + 40]) + (MPCP \times 50)$
Cool Deck: $(MPCP^2 \times [PF \times 20]) + (MPCP \times 25)$
PF Basis: MPCP

Hardening
Formula: $(Hardening^2 \times [(PF \times 8) + 100] + (Hardening \times 70)$
PF Basis: Hardening

ICCM Biofeedback Filter
Formula: $(MPCP^2 \times [(PF \times 4) + 115]) + 5,000¥$
PF Basis: MPCP

I/O Speed
Formula: Speed in MePS x 30¥

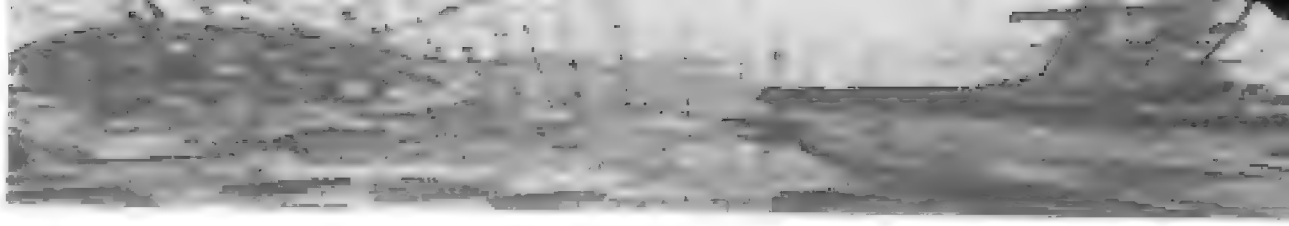
Response Increase
Formula: $([MPCP^2 \times Response] \times [PF + 80]) + (Response \times 105)$
PF Basis: MPCP

Satlink Interface
Formula: $(MPCP^2 \times [(PF \times 2) + 40]) + (MPCP \times 35)$
PF Basis: MPCP

Satlink Dish	Cost
50-cm portable	800¥
1 meter portable	1,200¥
3 meter fixed	900¥
Cable	10¥/meter
Temporary Dish	
Electronics	1,000¥
Webbing	5¥
Spray (1 use)	1¥

PROGRAM PRICES

Program Rating	Price	Availability	Street Index
1–3	Size x 100¥	2/7 days	1
4–6	Size x 200¥	4/7 days	1.5
7–9	Size x 500¥	8/14 days	2
10+	Size x 1,000¥	16/30 days	3



HOST DESIGN TABLES

To design a typical host, select the desired Security Rating and Intrusion Difficulty, then make the appropriate dice rolls to determine the Security Value and Subsystem Ratings. The Paydata Allocation Table provides formulas for determining Paydata Points and data density of the host. Density may be rolled in advance or when the decker locates the paydata and is ready to download it.

HOST RATING TABLE

Intrusion Difficulty	Security Value	Subsystem Ratings
Easy	1D3 + 3	1D3 + 7
Average	1D3 + 6	2D3 + 9
Hard	2D3 + 6	1D6 + 12

PAYDATA ALLOCATION TABLE

Security Code	Paydata Points	Data Density
Blue	1D6 – 1	2D6 x 20 Mp
Green	2D6 – 2	2D6 x 15 Mp
Orange	2D6	2D6 x 10 Mp
Red	2D6 + 2	2D6 x 5 Mp

SHEAF DESIGN

Next, design the security sheaf. First, roll 1D6 + 2 and apply the appropriate modifier to produce the first trigger step. Then repeat the dice roll and add the modified result to the first step. The result is the second trigger step. Repeat the process to determine the remaining trigger steps.

TRIGGER STEPS

Host Security Code	Modifier
Blue	+4
Green	+3
Orange	+2
Red	+1

Now determine the events triggered by each trigger step, using the Alert Table. Roll 1D6 for each step and add 1 to the roll result for every trigger step allocated to the current alert level.

ALERT TABLE

Modified Roll	No Alert	Passive Alert	Active Alert
1–3	Reactive White	Proactive White	Proactive Gray
4–5	Proactive White	Reactive Gray	Proactive White
6–7	Reactive Gray	Proactive Gray	Black
8+	Passive Alert	Active Alert	Shutdown*

*See **Host Shutdown**, p. 53

Next, make the dice rolls indicated on the appropriate IC tables to determine the specific IC programs triggered by each trigger step.

IC TABLE

Reactive White IC

1D6 Roll	IC
1–2	Probe
3–5	Trace
6	Tar Baby

Proactive White IC

2D6 Roll	IC
1–5	Cripplers*
6–8	Killer
9	Trap Trace**
10	Trap Probe**
11–12	Construct/Party IC

Reactive Gray IC

1D6 Roll	IC
1–2	Trap Probe**
3–5	Trap Trace**
6	Tar Pit

Proactive Gray IC

2D6 Roll	IC
2–5	Rippers*
6–8	Blaster
9–10	Sparky
11–12	Construct/Party IC

Black IC

2D6 Roll	IC
2–4	Psychotropic
5–7	Lethal
8–10	Non-Lethal
11–12	Construct/Party IC

*Consult Crippler/Ripper Target Table to determine the Persona Attribute targeted by the IC.

**Roll on the Trap IC Table to determine the specific type of trap IC.

REFERENCE TABLES

CRIPPLER/RIPPER TARGET TABLE

1D6 Roll	IC Target
1–2	Bod
3	Evasion
4–5	Masking
6	Sensor

TRAP IC

2D6 Roll	IC
2–5	Blaster
6–8	Killer
9–11	Sparky
12	Black IC

IC RATING

	Host Security Value			
2D6 Roll	4 or less	5–7	8–10	11+
2–5	4	5	6	8
6–8	5	7	8	10
9–11	6	9	10	11
12	7	10	12	12

DEFENSE/OPTIONS TABLE

2D6 Roll	Defense	2D6 Roll	Option
2–3	Armor and Shifting	2	Cascading
4–5	Armor	3–5	Expert Offense*
6	Shifting	6–8	None
7	None	9–11	Expert Defense*
8	Shielding	12	Cascading
9–10	Armor		
11–12	Armor and Shielding		

*Roll 1D6 ÷ 2 to determine the Expert modifier

PHYSICAL RESPONSE TO TRACE

Jackpoint Is in Security Rating:	Target Is: Public	Corporate	Megacorp	Government
B or higher	10 + 2D6	15 + 2D6	8 + 2D6	10 + 1D6
C	10 + 4D6	15 + 3D6	10 + 1D6	10 + 1D6
D	20 + 4D6	10 + 2D6	5 + 1D6	5 + 1D6
Z	NA	10 + 1D6	5 + 1D6	5 + 1D6
On site	NA	2D6 + 2	1D6 + 2	2D6 + 2

CYBERCOMBAT TABLES

IC INITIATIVE

Host Security Code	Initiative
Blue	1D6 + IC Rating
Green	2D6 + IC Rating
Orange	3D6 + IC Rating
Red	4D6 + IC Rating

CYBERCOMBAT TARGET NUMBERS

Host Security Code	Intruder	Legitimate
Blue	6	3
Green	5	4
Orange	4	5
Red	3	6

PROGRAM-DESIGN TABLES

PROGRAM MULTIPLIERS

Persona Programs	Multiplier
MPCP	8
with Reality Filter	10
Bod	3
Evasion	3
Masking*	2
Sensor	2

UTILITIES TABLE

Utility	Type	Multiplier	System Operations	Options
Analyze	Operational	3	Analyze IC/Icon/Security, Locate IC	—
Armor	Defensive	3	—	Optimization
Attack-L	Offensive	2	—	All but sensitive, squeeze
Attack-M	Offensive	3	—	All but sensitive, squeeze
Attack-S	Offensive	4	—	All but sensitive, squeeze
Attack-D	Offensive	5	—	All but sensitive, squeeze
Black Hammer	Offensive	20	—	One-shot,optimization, targeting
Browse	Operational	1	Locate Access Node/File/Slave	—
Camo	Defensive	3	—	One-shot, optimization
Cloak	Defensive	3	—	One-shot, optimization
Commlink	Operational	1	Retrain, Tap Comcall	—
Compressor	Special	2	—	—
Crash	Operational	3	Crash Application/Host	—
Defuse	Operational	2	—	—
Deception	Operational	2	Graceful Logoff/Logon	—
Decrypt	Operational	1	Decrypt Access/File/Slave	—
Disinfect	Operational	2	Dinsinfect	—
Evaluate	Operational	2	Locate Paydata	—
Hog	Offensive	3	—	DINAB, one-shot, optimization, targeting
Killjoy	Offensive	10	—	One-shot, optimization, targeting
Lock-on	Defensive	3	—	One-shot, optimization
Medic	Defensive	4	—	DINAB, optimization
Mirrors	Operational	3	Decoy	—
Poison	Offensive	3	—	Area, DINAB, one-shot, optimization, targeting
Read/Write	Operational	2	Download/Upload Data, Edit File	—
Relocate	Operational	2	—	—
Restore	Defensive	3	—	DINAB, one-shot, optimization
Restrict	Offensive	3	—	Area, DINAB, one-shot, optimization, targeting
Reveal	Offensive	3	—	Area, DINAB, one-shot, optimization, targeting
Scanner	Operational	3	Locate Decker/Frame	—
Shield	Defensive	4	—	optimization
Sleaze	Special	3	—	—
Slow	Offensive	4	—	Area, DINAB, one-shot, optimization, targeting
Spoof	Operational	3	Command/Edit/Monitor Slave	—
Steamroller	Offensive	3	—	DINAB, one-shot, optimization, targeting
Track	Special	8	—	—
Validate	Operational	4	Dump Log, Validate Passcode	—

REFERENCE TABLES

UTILITY OPTIONS

Option	Rating Modifier
Area	+Area Rating
Chaser	+1
DINAB	+DINAB Rating
Limit	–1
One-Shot	Real Size – 75%/Design Size + 50%
Optimization	Real Size – 50%/Design Size + 100%
Penetration	+1
Sensitive	Real Size – 75%/Design Size + 50%
Squeeze	+1
Stealth	+Stealth Rating
Targeting	+2

DESIGN SIZE TABLE

Program Rating	Multiplier 1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	4	8	12	16	20	24	28	32	36	40
3	9	18	27	36	45	54	63	72	81	90
4	16	32	48	64	80	96	112	128	144	160
5	25	50	75	100	125	150	175	200	225	250
6	36	72	108	144	180	216	252	288	324	360
7	49	98	147	196	245	294	343	392	441	490
8	64	128	192	256	320	384	448	512	576	640
9	81	162	243	324	405	486	567	648	729	810
10	100	200	300	400	500	600	700	800	900	1,000
11	121	242	363	484	605	726	847	968	1,089	1,210
12	144	288	432	576	720	864	1,008	1,152	1,296	1,440
13	169	338	507	676	845	1,014	1,183	1,352	1,521	1,690
14	196	392	588	784	980	1,176	1,372	1,568	1,764	1,960

SYSTEM OPERATIONS TABLE

Operation	Test	Utility	Action	Function
Analyze Host	Control	Analyze	Complex	Determine ratings/nature of Host
Analyze IC	Control	Analyze	Free	Identify located IC
Analyze Icon	Control	Analyze	Free	Identify icon type
Analyze Security	Control	Analyze	Simple	Determine grid/host's Security Rating, security tally, alert status
Analyze Subsystem	Targeted Subsystem	Analyze	Simple	Identify extraordinary features of host's subsystem
Control Slave*	Slave	Spoof	Complex	Control remote devices
Crash Application	Appropriate Subsystem	Crash	Complex	Crash application on host
Crash Host	Control	Crash	Complex	Shutdown host
Decoy	Control	Mirrors	Complex	Create decoy icon
Decrypt Access	Access	Decrypt	Simple	Defeat scramble IC to access grid/host
Decrypt File	Files	Decrypt	Simple	Defeat scramble IC on file
Decrypt Slave	Slave	Decrypt	Simple	Defeat scramble IC on Slave subsystem
Disinfect	Appropriate Subsystem	Disinfect	Complex	Destroy worm programs
Download Data*	Files	Read/Write	Simple	Copy file to cyberdeck
Dump Log*	Control	Validate	Complex	Read host access log
Edit File	Files	Read/Write	Simple	Change datafile
Edit Slave*	Slave	Spoof	Complex	Modify data sent to/from remote device
Graceful Logoff	Access	Deception	Complex	Exit grid/host w/out dump shock; clear system memories
Invalidate Passcode	Control	Validate	Complex	Erase passcode from host's security tables; trash passcode list
Locate Access Node	Index	Browse	Complex	Find LTG code for host
Locate Decker	Index	Scanner	Complex	Find decker in grid/host

SYSTEM OPERATIONS TABLE (CONT.)

Operation	Test	Utility	Action	Function
Locate Frame	Index	Scanner	Complex	Locate smart frames/SKs
Locate File	Index	Browse	Complex	Find specific datafile
Locate IC	Index	Analyze	Complex	Find IC in system
Locate Paydata?	Index	Evaluate	Complex	Find salable data on host
Locate Slave	Index	Analyze	Complex	Find system addresses of remoted devices controlled by Host
Logon to Host	Access	Deception	Complex	Access host
Logon to LTG	Access	Deception	Complex	Access LTG
Logon to RTG	Access	Deception	Complex	Access RTG
Make Comcall'	Files	Commlink	Complex	Call commcodes controlled by RTG/PLTG
Monitor Slave*	Slave	Spoof	Simple	Read data transmitted by remote device to host
Null Operation	Control	Deception	Complex	
Redirect Datatrail	Control	Camo	Complex	Confuse trace IC
Retrain	Access	Commlink	Free	Change decker's I/O bandwidth
Scan Icon	Special	Scanner	Simple	Determine specific features of icon
Swap Memory†	None	None	Simple	Load new utility
Tap Comcall	Special	Commlink	Complex	Trace/listen to commlink calls
Upload Data†	Files	Read/Write	Simple	Transmit data from deck to Matrix
Validate Passcode	Control	Validate	Complex	Validate false passcode on host

*Monitored operation
†Ongoing operation
?Interrogation operation

INTRUSION COUNTERMEASURES TABLE

IC	Proactive/ Reactive	Target	Effect
White IC			
Acid	Proactive	Icon Bod Rating	Varied damage to icon
Binder	Proactive	Icon Evasion Rating	Varied damage to icon
Data bomb	Reactive	Icon ratings	Rating(M) damage to icon
Jammer	Proactive	Icon Sensor Rating	Varied damage to icon
Killer	Proactive	Icon ratings	Varied damage to icon
Marker	Proactive	Icon Masking Rating	Varied damage to icon
Probe	Reactive	System operations	Detects unauthorized operations
Scramble			
Exploding	Reactive	Icon ratings	Varied damage to icon
Poison	Reactive	Protected data	Destroys protected data
Tar baby	Reactive	Utility programs	Crashes utility program
Gray IC			
Acid-rip	Proactive	Deck Bod Rating	Varied damage to deck ratings
Bind-rip	Proactive	Deck Evasion Rating	Varied damage to deck ratings

INTRUSION COUNTERMEASURES TABLE (CONT.)

Gray IC	Proactive/ Reactive	Target	Effect
Blaster	Proactive	MPCP Rating	Varied damage to MPCP
Dataworm	Reactive	MPCP Rating	Varied damage to MPCP
Deathworm	Reactive	Deck target numbers	Increases by 2 per worm
Jam-rip	Proactive	Deck Sensor Rating	Varied damage to deck ratings
Mark-rip	Proactive	Deck Masking Rating	Varied damage to deck ratings
Sparky	Proactive	MPCP Rating	Varied damage to MPCP; (IC Rating)M damage to decker
Tapeworm	Reactive	Downloaded files	Erases data (amount varies)
Tar pit	Reactive	Utility programs—all copies	Corrupts utilities
Trace	Proactive	Decker	Locates decker; reduces target numbers for proactive IC by 1
Black IC			
Lethal	Proactive	Icon ratings/decker	Varied Physical damage
Non-lethal	Proactive	Icon ratings/decker	Varied Mental damage
Psychotropic			
Cyberphobia	Proactive	Decker	Induces Matrix/decking phobia
Judas	Proactive	Decker	Induces compulsion to betray
Matrix maniac	Proactive	Decker	Inspires maniacal rage
PCPIC	Proactive	Decker	Inspires loyalty to user of IC

CYBERDECK RECORD SHEET

Hardening | Response Increase | I/O Speed

ASIST Interface

Hot | Cool | Off

	Installed Value	Running Value	×50	×50
MPCP				
Bod				
Evasion				
Masking				
Sensor				

Reaction

Initiative

Sleaze | I/2

Detection Factor

Suppression

Jackpoint Data

Access Mods | Jackpoint Bandwidth | Trace Modifier

Icon Bandwidth | I/O Bandwidth

Hacking Pool

Persona Condition Monitor

Deck Crashed

Serious ○ITH/○ Init

Moderate ○ITH/○ Init

Light ○ITH/○ Init

Programs

	Storage Memory	Active Memory
	[ ]	[ ]
	[ ]	[ ]
	[ ]	[ ]

CYBERDECK CONSTRUCTION WORK SHEET

MPCP

CURRENT Rating _____ **DESIRED Rating** _____ **SOFTWARE Rating** _____. **[Complete Software on Programming Sheet]**

SOFTWARE Rating: MPCP [+2 for Reality Filter] **Multiplier:** 8

COOK TASK	BASE TIME	COMPLETED TIME

INSTALL TASK	BASE TIME	COMPLETED TIME

COOK TASK:
TIME: MPCP x 3
TEST: COMPUTER B/R (MPCP)
PARTS: OCC@ PROGRAM SIZE
MICROTRONICS SHOP
OPTICAL CHIP ENCODER

INSTALLATION TASK
TIME: MPCP x 2
TEST: COMPUTER B/R (MPCP)
PARTS: PLC@ MCPC^2
DTC @ MCPC^2
TOOLS: MICROTRONICS SHOP

BOD

CURRENT Rating _____ **DESIRED Rating** _____ **SOFTWARE Rating** _____ **[Complete Software on Programming Sheet]**

SOFTWARE Rating: Bod **Multiplier:** 3

COOK TASK	BASE TIME	COMPLETED TIME

INSTALL TASK	BASE TIME	COMPLETED TIME

COOK TASK:
TIME: BOD x 3
TEST: COMPUTER B/R (BOD)
PARTS: OCC@ PROGRAM SIZE
TOOLS: PERSONAL COMPUTER
MICROTRONICS SHOP
OPTICAL CHIP ENCODER

INSTALLATION TASK:
TIME: BOD x 2
TEST: COMPUTER B/R (BOD)
PARTS: PLC@ BOD^2
DTC @ BOD^2]
TOOLS: MICROTRONICS KIT

EVASION

CURRENT Rating _____ **DESIRED Rating** _____ **SOFTWARE Rating** _____ **[Complete Software on Programming Sheet]**

SOFTWARE Rating: Evasion **Multiplier:** 3

COOK TASK	BASE TIME	COMPLETED TIME

INSTALL TASK	BASE TIME	COMPLETED TIME

COOK TASK:
TIME: EVASION x 3
TEST: COMPUTER B/R (EVASION)
PARTS: OCC@ PROGRAM SIZE
TOOLS: PERSONAL COMPUTER
MICROTRONICS SHOP
OPTICAL CHIP ENCODER

INSTALLATION TASK
TIME: EVASION x 2
TEST: COMPUTER B/R (EVASION)
PARTS: PLC@ EVASION^2
DTC @ EVASION^2]
TOOLS: MICROTRONICS KIT

MASKING

CURRENT Rating _____ **DESIRED Rating** _____ **SOFTWARE Rating** _____. **[Complete Software on Programming Sheet]**

SOFTWARE Rating: Masking **Multiplier:** 2

COOK TASK	BASE TIME	COMPLETED TIME

INSTALL TASK	BASE TIME	COMPLETED TIME

COOK TASK:
TIME: MASKING x 3
TEST: COMPUTER B/R (MASKING)
PARTS: OCC@ PROGRAM SIZE
TOOLS: PERSONAL COMPUTER
MICROTRONICS SHOP
OPTICAL CHIP ENCODER

INSTALLATION TASK:
TIME: MPCP x 2
TEST: COMPUTER B/R (MASKING)
PARTS: PLC@ MASKING^2
DTC @ Masking^2]
TOOLS: MICROTRONICS KIT

SENSOR

CURRENT Rating _____ **DESIRED Rating** _____ **SOFTWARE Rating** _____ **[Complete Software on Programming Sheet]**

SOFTWARE Rating: Sensor **Multiplier:** 8

COOK TASK	BASE TIME	COMPLETED TIME

INSTALL TASK	BASE TIME	COMPLETED TIME

COOK TASK:
TIME: SENSOR x 3
TEST: COMPUTER B/R (SENSOR)
PARTS: OCC@ PROGRAM SIZE
TOOLS: PERSONAL COMPUTER
MICROTRONICS SHOP
OPTICAL CHIP ENCODER

INSTALLATION TASK
TIME: SENSOR x 2
TEST: COMPUTER B/R (SENSOR)
PARTS: PLC@ SENSOR^2
DTC @ SENSOR^2]
TOOLS: MICROTRONICS KIT

ACTIVE MEMORY

CURRENT Rating _____
DESIRED Rating _____

INSTALL TASK	BASE TIME	COMPLETED TIME

INSTALLATION TASK:
TIME: MEMORY SIZE/100
TEST: COMPUTER B/R (SIZE/100)
PARTS: OCC@ MEMORY SIZE
PLC@ SIZE/10
TOOLS: MICROTRONICS KIT

STORAGE MEMORY

CURRENT Rating _____
DESIRED Rating _____

INSTALL TASK	BASE TIME	COMPLETED TIME

INSTALLATION TASK:
TIME: MEMORY SIZE/100
TEST: COMPUTER B/R (SIZE/100)
PARTS: OMC@ MEMORY SIZE
DTC@ SIZE/10
TOOLS: MICROTRONICS KIT

ASIST INTERFACE

CURRENT Rating ___ **DESIRED Rating** ___ **SOFTWARE Rating** ___ **[Complete Software on Programming Sheet]**

SOFTWARE Rating: MPCP **Multiplier:** 2 (HOT DECK) 1 (COOL DECK)

COOK TASK	BASE TIME	COMPLETED TIME

INSTALL TASK	BASE TIME	COMPLETED TIME

COOK TASK:
TIME: MPCP x 1
TEST: COMPUTER B/R (MPCP)
PARTS: OCC@ PROGRAM SIZE
TOOLS: PERSONAL COMPUTER
MICROTRONICS SHOP
OPTICAL CHIP ENCODER

INSTALLATION TASK:
TIME: MPCP x 1
TEST: COMPUTER B/R (MPCP)
PARTS: PLC@ MCPC^2
PLC @ MCPC (COOL), ASIST PROCESSOR (1,250¥)
TOOLS: MICROTRONICS KIT

© Copyright 1985 FASA Corporation. All rights Reserved. Permission to Photocopy

CYBERDECK CONSTRUCTION WORK SHEET

HARDENING
CURRENT Rating ____ **DESIRED Rating** ____ **SOFTWARE Rating** ____ **[Complete Software on Programming Sheet]**

COOK TASK

BASE TIME	COMPLETED TIME

INSTALL TASK

BASE TIME	COMPLETED TIME

SOFTWARE Rating: HARDENING

COOK TASK
- **TIME:** MPCP x HARDENING
- **TEST:** COMPUTER B/R (HARD.)
- **PARTS:** OCC@ PROGRAM SIZE
- **TOOLS:** PERSONAL COMPUTER
  MICROTRONICS SHOP
  OPTICAL CHIP ENCODER

Multiplier: 8

INSTALLATION TASK:
- **TIME:** MPCP x HARDENING
- **TEST:** COMPUTER B/R (HARD.)
- **PARTS:** PLC@ HARDENING^2
  DTC @ HARDENING x 2
- **TOOLS:** MICROTRONICS SHOP

ICCM FILTER
CURRENT Rating ____ **DESIRED Rating** ____ **SOFTWARE Rating** ____ **[Complete Software on Programming Sheet]**

COOK TASK

BASE TIME	COMPLETED TIME

INSTALL TASK

BASE TIME	COMPLETED TIME

SOFTWARE Rating: MPCP

COOK TASK:
- **TIME:** MPCP x 2
- **TEST:** COMPUTER B/R AND BIOTECH (MPCP)
- **PARTS:** OCC@ PROGRAM SIZE
- **TOOLS:** PERSONAL COMPUTER
  MICROTRONICS SHOP
  OPTICAL CHIP ENCODER

Multiplier: 4

INSTALLATION TASK:
- **TIME:** MPCP x 2
- **TEST:** COMPUTER B/R AND BIOTECH (MPCP)
- **PARTS:** PLC@ MPCP^2
  DTC @ MPCP^2]
- **TOOLS:** MICROTRONICS SHOP

I/O SPEED
CURRENT Rating _____

DESIRED Rating _____

INSTALL TASK

BASE TIME	COMPLETED TIME

INSTALLATION TASK:
- **TIME:** I/O SPEED/100
- **TEST:** COMPUTER B/R (I/O SPEED/100)
- **PARTS:** PLC@ I/O SPEED/20
  DTC@ I/O SPEED/10
- **TOOLS:** MICROTRONICS KIT

RESPONSE INCREASE
CURRENT Rating ____ **DESIRED Rating** ____ **SOFTWARE Rating** ____ **[Complete Software on Programming Sheet]**

COOK TASK

BASE TIME	COMPLETED TIME

INSTALL TASK

BASE TIME	COMPLETED TIME

SOFTWARE Rating: MPCP

COOK TASK:
- **TIME:** MPCP x INCREASE
- **TEST:** COMPUTER B/R (INC. x 2)
- **PARTS:** OCC@ PROGRAM SIZE
- **TOOLS:** PERSONAL COMPUTER
  MICROTRONICS SHOP
  OPTICAL CHIP ENCODER

Multiplier: INCREASE x 2

INSTALLATION TASK:
- **TIME:** MPCP x INCREASE
- **TEST:** COMPUTER B/R (INC. x 2)
- **PARTS:** PLC@ INCREASE x 3
  DTC @ INCREASE x 3
- **TOOLS:** MICROTRONICS SHOP

STARLINK INTERFACE
CURRENT Rating ____ **DESIRED Rating** ____ **SOFTWARE Rating** ____ **[Complete Software on Programming Sheet]**

COOK TASK

BASE TIME	COMPLETED TIME

INSTALL TASK

BASE TIME	COMPLETED TIME

SOFTWARE Rating: MPCP

COOK TASK:
- **TIME:** MPCP x 1
- **TEST:** COMPUTER B/R (MPCP)
- **PARTS:** OCC@ PROGRAM SIZE
- **TOOLS:** PERSONAL COMPUTER
  MICROTRONICS SHOP
  OPTICAL CHIP ENCODER

Multiplier: 2

INSTALLATION TASK:
- **TIME:** MPCP x 1
- **TEST:** COMPUTER B/R (MPCP)
- **PARTS:** PLC@ MPCP
  DTC @ MPCP
- **TOOLS:** MICROTRONICS SHOP

VIDSCREEN
INSTALLED? _____

BASE TIME: 12 HOURS
TEST: COMPUTER B/R (4)
PARTS COST: 100¥

HITCHER JACKS
NUMBER INSTALLED? _____

BASE TIME: 48 HOURS
TEST: COMPUTER B/R (# JACKS)
PARTS COST: 250¥

OFFLINE STORAGE
MEMORY SIZE _____

BASE TIME: 24 HOURS
TEST: COMPUTER B/R (3)
PARTS COST: (50¥ +.5¥) per MP

HITCHER JACKS
IMPACT _____

BALLISTIC _____

IMPACT	BALLISTIC	COST
1	0	0
2	1	500¥
3	2	2,000¥
4	3	5,000¥

© Copyright 1985 FASA Corporation. All rights Reserved. Permission to Photocopy.

PROGRAMMING WORKSHEET

Programmer:_____ Skill Level ☐

Programs	Design Rating	Design Size	Actual Rating	Actual Size	Task Period

Options	Days Worked	[Days Worked ⇔ Task Bonus]		Task Period Reduction

Programs	Design Rating	Design Size	Actual Rating	Actual Size	Task Period

Options	Days Worked	[Days Worked ⇔ Task Bonus]		Task Period Reduction

Programs	Design Rating	Design Size	Actual Rating	Actual Size	Task Period

Options	Days Worked	[Days Worked ⇔ Task Bonus]		Task Period Reduction

© Copyright 1995 FASA Corporation. All rights Reserved. Permission to Photocopy.

INDEX

A

Access
  modifier, 28
  rating, 16
Acid cripplers, 41
Acid-rip IC, 43
ACIFS, 16
Actions, 120-21
  complex, 121
  free, 120-21
  non-combat, 121
  simple, 121
Active alert, 63
Active memory, 85
  compressor program and, 97
  construction, 85
Adrenal conditioners, 49
Alerts, 62-65
Alert table, 159
Algorithms, 34, 35, 56
Analyze host operation, 33
  description of, 111
  virtual machine and, 35
Analyze icon operation
  for data bomb location, 41
  description of, 111
Analyze IC operation, 111
Analyze programs, 96, 127
Analyze security operation,
description of, 111
Analyze subsystem operation, 33
  description of, 111
  for host networks, 36
  worm detection, 43
Application programs, 68
Area option, 103
Armor
  defense, 50
  rating, 145
  utility program, 41, 99
Artificial Intelligence, 138-41
ASIST interface, 9, 14, 85
  construction, 86
  controls, 85
  protocols, 134
  RAS override, 85
  tortoises and, 85
  upgrades, 84
Attack, 121, 123
  programs, 40, 98, 130
  test, 41
Attributes
  of decker, 76
  of otaku, 144, 145
  persona, 76-77
Availability tests, for buying programs, 107
Average systems, 31

B

Bandwidth, 28, 45
  icon, 90
  I/O speed, 86-87, 90
  reassignment, 91
  rule, 90
  throughput, 77
  utility loads, 91
Barrens, 137
BEMS, 76
Binder cripplers, 41
Bind-rip IC, 43
Biofeedback
  filter, 76, 86
  responses, 47
Black hammer program, 98
Black IC, 47
  in combat, 47-48
  lethal, 48-49
  nonlethal, 49
  psychotropic, 49-50
  tables, 64
Blaster IC, 43
Blinder IC, 43
Blue host, 30-31
  alert status of, 65
  reset of, 65
Bod
  attribute, 76
  mode, 77
  rating, 43, 76
  test, 98
Bodstripper, 43
Body resistance test, 48
Booby trap, 41
Bouncers, 32-33
Breadboarding rule, 90
Browse programs, 96, 127-28
Buffer systems, 37

C

Camo program, 99
Cascading IC, 51
Channel skill, 144-45
Chaser option, 103
Chips, 83
Chokepoints, 15, 33
Circuitry, 83
Cloak program, 99
Combat
  actions, 120-21
  attack resolution, 123-24
  constructs in, 52
  initiation of, 121
  initiative, 120
  maneuvers, 99-100, 121-23
  sequence, 120
  tables, 160
  target numbers, 123, 160
Command sets, 104-5
Commercial conversion rule, 90
Commlink programs, 96, 128
Communications, 121
Complex actions, 121
Complex forms, 145-46
Components
  price table, 89
  task descriptions, 83
Compressor program, 97, 104
Computer skill, 76
  for cook task, 82
  for installation task, 82
  programming teams and, 102
Computer test, 82, 98
Condition monitor
  medic program and, 99-100
  semi-autonomous knowbots, 140-41
  table, 124
Console-access jackpoint, 29
Construction
  active memory, 85
  ASIST interface, 86
  hardening, 86
  ICCM filter, 86

I/O speed, 87
persona chip, 84-85
response increase, 87-88
satlink interface, 88
storage memory, 88
Constructs, 52, 64
Control rating, 16
Control slave operation, 111
Control test, 35
Cook task, 82
Cool deck, 85
black IC and, 47, 48
UV host and, 37
Core rating, 105-6
Cranial components, 83
Cranial cyberdeck, 82
Crash application operation, 111
Crash host operation, 53, 111-12
Crash programs, 96, 128
Crippler IC, 41, 64, 160
C^Z deck, 82
Cyberadept, otaku, 147
Cybercombat. *See* Combat
Cyberdeck. *See* Deck
Cyberphobia, 49
Cyberterminals, 8
Cyberware, and hacking pool, 19

D

Damage
of attack programs, 98-99
of data bomb, 41
defensive programs and, 99-100
dump shock, 124
icon, 123-24
IC table, 123
of killer IC, 41
of lethal black IC, 48-49
neurological, 49
otaku and, 146
overflow, 48, 49
overload, 124
permanent, 49
resistance test, 86
Data bomb, 41, 42
Data transmission, 91
Dataworms, 44
Deathworms, 44
Deception program, 96, 128
Deception utility, 35
Deck, 81-82
active memory, 85
ASIST interface, 85-86
bandwidth, 90-91
breadboarding, 90
casing, 88
commercial conversions, 90
components, 88-90, 158
construction of, 82, 157
cool. *See* Cool deck
hardening, 83, 86
hot. *See* Hot deck
ICCM biofeedback filter, 86
I/O speed, 86-87
master persona control program, 76, 84
modes, 77, 121
parts, 83
persona programs, 76-77, 84-85
record sheet, 165
response increase, 87-88
satlink interface, 88
shop, 93
special options, 76
storage memory, 88
tools, 82-83
upgrades, 83-84
worksheet, 166-67
Decker, 14
attributes, 17, 76
initiative, 120
persona, 17, 76-77
ratings, 17-19
skills, 76
tasks, 77-78
Decoy frame, 107
Decoy operation, 112
Decrypt access operation, 112
Decrypt file operation, 112
Decrypt program, 42, 96
Decrypt slave operation, 112
Deep resonance, 144, 145-48
Default mode, 77
Defenses
option table, 160
paydata table, 67
Defensive utility programs, 96, 99-100
Defuse program, 96
Delay action, 120, 121
Detection factor, 14, 17-18
IC suppression and, 40
sleaze program and, 97
DINAB (decker in a box), 103-6
Direct communications, 121
Disinfect operation, 112
Disinfect program, 96
DNI (direct neural interface), 14, 85
Download, 91, 121
Download data operation, 112
Dumb frames, 105, 106-7
DINAB option and, 106
purpose of, 106-7
Dump log operation, 112-13
Dump shock, 53, 124

E

Easy systems, 31
Edit file operation
application programs and, 68
description of, 113-14
Edit slave operation, 114
Encephalon implants, 19
Encoders
optical-chip, 82, 83
task bonus and, 83
Entry points, 28, 33-34
Etiquette skill, 76
Evade-detection maneuver, 122
Evaluate program, 97
Evasion, 9
attribute, 76
mode, 77
rating
restrict program and, 99
rippers, 43
test
cloak program and, 99
track program and, 97
Event trigger, 107
Expert IC, 52
Exploding IC, 42

F

Facility, tool, 82
Files rating, 16
Firmware chips, 82
Flypaper IC, 43
Frame, 105
  core, 105-6
  dumb, 105, 106-7
  loading, 106
  program, 146
  running, 106
  smart, 105, 107
Free actions, 120-21
Front-end program, 14

G

Gluefoot IC, 43
Gouger IC, 43
Graceful logoff operation
  description of, 114
  for trace IC, 45-46
Gray IC, 43-45
  otaku and, 146
  tables, 63-64
Green host, 31
  alert status of, 65
  reset of, 65
Grid, 12, 14, 26
  connections, 14-15
  jackpoints, 28-29
  local, 28
  regional, 26-37
  security tally, 29
  system operations on, 29-30

H

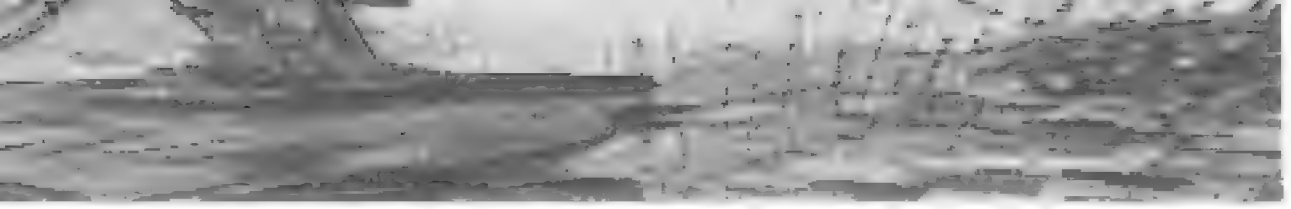
Hacking pool, 18-19
Hardening, 86
  construction, 86
  deck, 83
  rating, 83, 145
Hard systems, 31
Hardware concentration, 76, 78
High-security systems, trigger steps of, 62
Hog program, 98
Host, 12, 14, 30
  alert status of, 64
  application program, 68
  blue, 30-31, 65
  connections, 14-15
  design tables, 159-64
  function of, 65-68
  green, 31, 65
  intrusion difficulty, 31
  native, 140
  networks, 36
  orange, 31, 65
  passcodes, 35-36
  paydata, 65-67
  rating table, 159
  red, 31, 65
  reset of, 65
  shutdown, 53
  slave system, 68
  security codes, 30-31
  system operation tricks, 32-35
  system ratings, 31-32
  ultraviolet, 36-37
Host-host access configuration, 15
Hot deck, 37, 85
Hunt cycle, of trace IC, 45

I

Icon, 8, 14, 134
  bandwidth, 91
    reassignment, 91
    rule, 90
  condition monitor, 124
  damage, 123-24
  operation suspension, 91
  otaku, 145
Iconography, 84
Illegal-access jackpoint, 29
Implant specialization, 82
Index rating, 16
Initiative, 120
  decker, 120
  IC, 120, 160
  and physical world, 120
Installation task, 82
Intelligence test, 49
Interface
  ASIST, 85-86
  controls, 85
  neural, 14, 85
  satlink, 88
  switching, 85
  tech specialization, 78
Interrogations, 110
Intrusion counter-countermeasures (ICCM), 84, 86
Intrusion countermeasures (IC), 38
  black, 47-50
  cascading, 51
  constructs, 52
  defensive options, 50
  destruction of, 40
  expert, 52
  gray, 43-45
  host shutdown, 53
  initiative, 120, 160
  location of, 40
  party, 52-53
  proactive, 40
  program
  trigger steps, 63-65
  random operation, 63-65
  ratings, 40, 160
  reactive, 40
  suppression of, 40
  table, 159, 163-64
    damage, 123
    defenses, 64
    options, 64
    ratings, 64
  targeting bonus, 46
  trace, 40, 45-47
  trap, 50-51
  white, 40-43
  unsuppress, 121
Intrusion difficulty, 31
Invalidate passcode operation, 114
I/O bandwidth, 90-91
I/O speed, 82, 86-87

J

Jackpoint, 14, 28-29
  on site, 47
  system operation from, 29
  types of, 29
Jammer cripplers, 41
Jam-rip IC, 43
Judas effect, 49



K

Karma
  otaku and, 146
  SOTA factor and, 78
Killer IC, 41
Killer program, 57
Killjoy program, 98
Kit, tool, 82

L

LANs (local area networks), 15
Legal-access jackpoint, 29
Lethal black IC, 48-49
Lifestyle, SOTA and, 78
Limit option, 104
Linked passcode, 35
Loading rating, 106
Local telecommunication grid (LTG), 15, 28
  entry points, 33
  security tally, 29
  system operation on, 30
  system rating of, 28
Locate access node operation, 33, 114
Locate decker operation, 114
Locate file operation, 115
Locate frame operation, 114-15
Locate IC operation, 40, 115
Locate paydata operation, 66, 115
Locate slave operation
  description of, 115
  for security controls, 68
Location cycle, of trace IC, 45
Lock-on program, 99
Logon to host operation, 29-30, 33
  description of, 116
  for host networks, 36
  passcodes and, 35
Logon to LTG operation, 30, 116
Logon to RTG operation, 30, 116
Low-security systems, trigger steps of, 62

M

Maintenance costs, 78
Make comcall operation, 116
Mapping, sculpted systems, 69, 70-73
Marker cripplers, 41
Mark-rip IC, 43
Masking, 9
  attribute, 76-77
  mode, 77
  rating
  reveal program and, 99
  rippers, 43
Master persona control (MPCP), 8-9, 76
  construction, 84
  iconography, 84
  price table, 126
  rating, 17, 76
  response increase and, 87
  semi-autonomous knowbots, 140-41
  reality filters, 84
  SOTA factor and, 78
  test, sculpted systems and, 69
  upgrades, 84
  worm infection of, 44
Math SPU, 19
Matrix
  maniac IC, 49-50
  programming specialization, 78
  signature, 76
Medic
  program, 99-100
  target numbers table, 99, 100
Memory
  active, 85
  storage, 88
Mental attributes, 76
Message, buffer, 121
Metaphors, 68-69, 126
Microtronic tools, 82
Mirror program, 97
Modes, deck, 77
Monitored operations, 110
Monitor slave operation, 116-17
Multiple improvements rule, 19
Multiple targets, 103
Multiplexing, 91
Mummy IC, 43

N

Native host, 140
Network, 36
  files, 36
  nodes, 36
Neural implantation, 59
Neurological damage, 49
No-alert status, 62
Nodes, 62
Non-combat actions, 121
Non-lethal black IC, 49
Null operation, 117

O

Object code, 96
Object format, 96
Offensive utility programs, 96, 98-99, 130-31
One-shot option, 104
Ongoing operations, 110
Open-access configuration, 15
Operational utility programs, 96-97, 127-29
Optical-code chips (OCCs)
  encoders, 82, 83
  programming of, 83
Options
  optimization, 104, 105
  utility, 102-4
Orange host, 31
  alert status of, 65
  reset of, 65
Otaku, 142-44
  armor, 145
  attributes, 144, 145
  behavior patterns, 144
  building, 144-45
  complex forms and, 145-46
  cyberadept, 147
  damage and, 146
  deep resonance, 144, 146-48
  hardening, 145
  living persona of, 145
  mystery of, 147-48
  playing, 146-47
  programming days, 145
  resources, 145
  response, 145

role of, 144
skills, 144-45
technoshaman, 147

P

Paint IC, 43
Parry-attack maneuver, 122
Parts, 83
Party IC, 52-53, 64
Passcode, 9-11, 35
authorization, 35-36
format, 35
superuser, 36
supervisor, 36
Passive alert, 62-63
Passkey, 35
Paydata, 65-66
allocation table, 159
defenses, 66-67
excessive rewards, 67
fencing, 67
nature of, 67
points, 66
Peeler IC, 43
Penetration option, 104
Persona, 8, 14, 76
chip construction, 84-85
of otaku, 145
program, 14, 17
descriptions of, 76-77, 84-85
SOTA factor and, 78
software, 126-27
suites, 127
Phobia penalty, 49
Position-attack maneuver, 122
Poison IC, 42
Poison program, 98, 130-31
Positive-conditioning psychotropic IC (PCPIC), 50
Private grid access configuration, 15
Private local telecommunication grid (PLTG), 15
entry points, 28
regulation of, 28
security tally, 29
system operation on, 30
system rating of, 28
Proactive intrusion countermeasures, 40
location of, 40
slow program and, 99
tables, 63-64
types of, 41-42, 47-50
Probe IC, 42
Probe program, 57
Program
buying of, 107
command sets, 104-5
cost, 103
design tables, 160-64
frames, 105-7, 146
multipliers, 160
object code, 96
options, 102-4
prices, 107, 158
ratings, 101
self-compressed, 104
size, 101
actual, 103
design, 103
options and, 103
table, 162
source code, 96
unload, 121
upgrades, 83, 107
utility, 96-100, 127-31
worksheet, 168
Program factor (PF), 89
Programming
base time, 100-101
languages, 96
otaku and, 145
shop, 101
suite, 102
task, 107
task period, 101
teams, 102
tools, 101-2
Psychotropic intrusion countermeasures, 49-50, 58-59
conditioning effects, 59
implantation, 59
positive, 50

R

Reaction rating, 145
Reactive intrusion countermeasures, 40
data bomb, 41
location of, 40
probes, 42
scramble, 42
slow program and, 99
tables, 63-64
tar baby, 42-43
tar pit, 43
worms, 43-45
Read/write program, 97, 128
Reality filters
MPCP, 84
sculpted systems and, 69, 72
Red host, 31
alert status of, 65
reset of, 65
Redirect datatrail operation, 117
Reduced enforcement areas, 137
Regional telecommunication grid (RTG)
entry points, 33
security tally, 29
system operation on, 30
system ratings
North American, 26
overseas, 27
Relocate program, 97, 128
Relocate utility, 46
Remote devices, 29
control slave operation and, 118
slave subsystem for, 68
Resistance test
ICCM filter and, 86
for lethal black IC, 48
Response increase, 76, 87
construction, 87-88
reality filter and, 84
upgrades, 84
Restore program, 100
Restrict program, 99
Reticular-activation system override (RAS), 85
Retrain operation
description of, 117
I/O bandwidth change, 91
Reveal program, 99
Rippers, 43, 64, 160

S

Salvage, 84
Satellite
  dish, 88
  links, 30
  -uplink jackpoint, 29
Satlink interface, 30, 88
  construction, 88
  dish prices table, 88
Scan icon operation, 117
Scanner program, 97, 129
Scramble IC, 42
Screamer IC, 43
Sculpted systems, 68, 70-73
  design of, 69
  effects of, 69
  icon program stability, 76
  mapping, 69
  metaphor choice for, 68-69
  reality filters and, 69, 72
Secret passages, 33
Security
  assets, 47
  chokepoint design, 15
  code, 16
  hosts, 30-31
  trigger steps and, 62
  rating, 16
  sheaf, 62
  alerts, 62-63
  IC programs, 63-65
  table, 62
  trigger steps, 62
  tally, 19
  grid, 29
  host shutdown threshold, 53
  virtual machines and, 35
  value, 16
Semi-autonomous knowbots (SKs), 140-41
  native hosts and, 140
  ratings, 140-41
  response, 141
  running, 141
  utility pool, 141
Sensitive option, 104
Sensor, 8
  attribute, 77
  mode, 77
  rating, 43
  test
  bouncers, 33
  host shutdown and, 53
Server program, 14
Sheaf, design, 159-60
Shield defense, 50
Shield program, 100
Shift defense, 50
Shop
  programming, 101
  tool, 82
Signature code, 8, 9, 11
Simple actions, 121
Simsense overload, 124
Situation modifiers, system test and, 19
Sizzler IC, 43
Skills
  decker, 76
  otaku, 144-45
Skulk option, 104
Slave
  rating, 16
  subsystem, 68
  factories/labs, 68
  security remotes, 68
  test, 33
Sleaze program, 97, 129
Slow program, 99
Smart frame, 105, 107
  DINAB option and, 106
  initiative, 106, 120
Sniper program, 130
Software
  concentration, 76, 78
  task, 82, 83
Source program, 96
Sparky IC, 43
Special utility programs, 96, 97-98, 129
Spoof program, 97
Sprites, 146
Squeeze option, 104, 105
State-of-the-art (SOTA)
  factor, 78
  lifestyle and, 78
  maintenance costs, 78
  otaku and, 146
  table, 78
Steamroller program, 99
Stick IC, 43
Storage memory, 88
Subsystem
  rating, 16, 32
  test, 104-5
Success test, for tasks, 77
Suite, programming, 102
Swap memory operation
  description of, 117-18
  DINAB and, 103-4
  hog virus and, 98
  one-shot option and, 104
  speed of, 91
  for storage memory, 88
  for tar pit, 43
Switchers, 15
System-access nodes (SANs), 62
System-aware-signature-suppression chips (SASSys), 9
System log, 113
System operations, 14, 108-10
  descriptions, 110-18
  on grid, 29-30
  hosts, 32-35
  interrogations, 110
  monitored, 110
  ongoing, 110
  table, 162-63
System rating, 16
  hosts
  assigned values, 32
  random generation, 31-32
  variable subsystem ratings, 32
  grid
  LTG, 28
  PLTG, 28
  RTG, 26-27
  virtual machine, 34
System test, 16, 110
  data bomb, 41
  operational utility programs and, 96-97
  system operation and, 14
  for task performance, 19
  on virtual machine, 34, 35

T

Tag IC, 43
Tally-acceleration bonus, 46
Tap commcall operation, 118
Tapeworms, 44
Tar baby program, 42-43, 57
Tar IC, 99
Targeting option, 104
Tar pit, 43
Task
  bonus, 77
  encoders and, 83
  otaku, 146
  tools and, 82-83
  completion of, 77-78
  decker, 77-78
  descriptions, 82
  health and, 77-78
  period, 101, 107
Teams, programming, 102
Technoshaman, otaku, 147
Teleporting SANs, 34
Threat ratings, 52
Throughput, 77
Tiered access configuration, 15
Tools, 82
  facilities, 82
  kit, 82
  price table, 83
  programming, 101-2
  shops, 82
  suites, 101
  task bonus, 82-83
  unit table, 83
Tortoises, 37, 85
Trace factor, 28, 45
  camo program and, 99
Trace IC, 45
  defeat of, 45-46
  effects of, 46-47
  hunt cycle, 45
  location cycle, 45
  slow program and, 99
  trace factor and, 45
Track program, 97-98
Tranq patches, 50
Trap doors, 33
Trap IC, 50-51, 64, 160
Trap trace, 47
Triggered SANs, 34
Trigger steps, 62, 159
  for IC programs, 63-65
  multiple, 62
  table, 62
True artificial intelligence (AI) program, 141

U

Ultraviolet hosts, 36-37
Universal matrix specifications (UMS), 60, 68-69
Upgrade
  of complex forms, 146
  component, 83
  evaluate program and, 97
  MPCP, 84
  program, 83, 107
  salvage, 84
Upload, 91, 121
Upload data operation, 118
User, 11, 14
  passcode, 36
Utility options, 103-4, 162
  cost, 103
  program size and, 103
  ratings and, 103
  rule, 40, 102-4
Utility pool, 141
Utility programs, 96
  active memory and, 85
  defensive, 99-100
  description of, 127-31
  offensive, 98-99, 130-31
  operational, 96-97, 127-29
  SOTA factor and, 78
  special, 97-98, 129
  system test and, 19
  UV host and, 37
Utility table, 161

V

Validate passcode operation, 102, 118
Validate program, 97, 129
Validation levels, 11
Vanishing SANs (system access nodes), 33-34
Variable LTG ratings rule, 28
Verbal communications, 121
Virtual machine (VM), 34-35
Virus weapon, 98

W

Weapon
  carrier, 107
  virus, 98
White IC, 40-43, 63
Willpower test
  for black IC, 48, 49, 50
  for recovery from psychotropic effects, 50
  for simsense overload damage, 124
Workstation, 29
Worms, 43-45, 112
Wounds, 77-78

Fin